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ADDRESSES AND ORIGINAL ARTICLES

THE COMMEMORATION OF GREAT MEN.*

BY WILFRED TROTTER, M.S. LOND., F.R.C.S. ENG., F.R.S.,
SERJEANT SURGEON TO THE KING; SURGEON TO UNIVERSITY COLLEGE HOSPITAL, LONDON.

I.

EVENTS that recur with a regular period are apt to be taken as a matter of course, to have their significance regarded as obvious, and to seem in no need of justification. To resist this tendency to confuse the familiar with the obvious is one of the most necessary efforts the mind is called upon to make. The institution whose recurrent activity we take part in to-day was set up 119 years ago, and marks a birthday since which 204 years have passed. For more than a century orations have been delivered on the life and work of Hunter, and they have explored their theme from every aspect and adorned it with every art. The high qualities of these orations make it impossible for a new contributor without special aptitude to hope for any freshness in the presentation of a topic already so well discussed by better men. On the other hand, the imposing length of the series may perhaps have a little obscured our apprehension of the more elementary meanings that underlie these regularly returning occasions. Under the pressure of these converging indications it will be my relatively humble task to seek answers to such questions as the first giver of this oration might be supposed in his preliminary musings to have put to himself. What are the reasons, we shall want to know, why John Hunter should be regarded as a fit subject for enduring celebration, and what do we wish and what do we attain in the many activities by which in general we pursue, or suppose ourselves to pursue, the commemoration of great men?

II.

To question established beliefs is nowadays perhaps a rather old-fashioned activity. We may be sure, nevertheless, that it is one of which Hunter would thoroughly have approved even if his own greatness was to be in question. In that case, however, if we are to judge by his known methods in controversy, the discussion would go all the smoother if we hinted beforehand what the verdict was to be. For of the verdict there can be no doubt, and it will find that the makers of this recurring celebration not only chose an exceptionally sound foundation but built perhaps a great deal better than they knew.

Hunter was a successful surgeon with a large practice and a correspondingly ample income. It must not be suggested here that that is anything but highly respectable attainment. It is not, however, attainment that, under any magnification or however many ciphers may be subtracted from the mortality of his patients and added to his income, reveals in its creator the heroic features we are seeking.

Hunter made the museum which for over a century has been the very focus and palladium of this College. In this work we find the giant energy and resolution of true greatness directed by a correspondingly clear and ample idea. It was no mere miscellaneous assemblage of odds and ends as the collections of his contemporaries tended perhaps a little to be, but a grouping of orderly series nobly illustrating the living world and the processes of disease. It is scarcely possible for the richness and order of this historic monument to be spoken of too highly, but it may be doubted whether in themselves they could have given to their creator his unique and enduring prestige.

Hunter was a consistent and expert user of the experimental method in the study of living processes, and it is on this fact that his fame essentially and ultimately rests. It was by impressing this method on his pupils and successors that his services to science and to surgery have had their most extended and their richest effects. These experimental studies covered a very wide field and dealt with fundamental problems such as the process of repair, the survival of isolated tissues, transplantation, grafting, inflammation, the processes of growth, and the influence on them of the sexual glands. Such researches were pursued with unfailing zeal and ability, and yielded results of importance in many directions. It is impossible, however, not to be struck by a certain disproportion between the amount of energy and genius that was expended, and the harvest of substantial knowledge that was gathered. Many of the researches were indecisive, not a few of the conclusions were incorrect, and no single advance was won which could be said to mark an epoch in the history of knowledge. Every student of Hunter is convinced that he belonged to the very small class of those who possess powers of the first order; few can be equally convinced that he made a direct contribution to the science of his day fully commensurate with his splendid gifts. It is therefore particularly happy that his commemoration should have been formally assured and entrusted to an enduring institution. Other experimental workers in the science of life, more fortunate but perhaps not more richly endowed, have by their labours so contributed to the very structure and substance of knowledge as to be sure of remembrance without any specific memorial. Of Harvey, of Pasteur, of Lister every student of physiology or pathology is in some sense the beneficiary and direct legatee. The influence of Hunter was more limited to the indirect and germinal; he did not make an epoch, he founded a school.

III.

That Hunter's prodigious powers and devotion yielded such comparatively moderate accessions to knowledge is perhaps not without a certain shade of mystery and pathos. It is an idle occupation for the common man to busy himself with explaining the successes and failures of greatness, but it is no undue presumption to turn our attention to the circumstances of Hunter's life in the search for light upon his career. He was so resolutely modern in his attitude towards the problems of life, and he accepted so whole-heartedly the working hypothesis of their solubility, that we are apt to forget the state of knowledge of his time. During the 65 years of Hunter's life from 1728 to 1793 the biologist could look for practically no help from the sciences of the inorganic, and was without almost every article of equipment we now regard as essential to experimental work. We are accustomed to associate with the earliest foundations of modern chemistry and physics the great names of Cavendish, Priestley, Galvani, Volta, and Lavoisier. Every one of them was junior

* The Hunterian Oration delivered before the Royal College of Surgeons of England on Feb. 15th, 1932.

to Hunter. Let us for a moment regard the situation of Hunter in his prime in 1765. He would have had to wait ten years for Priestley's discovery of oxygen in 1775; he would have had to wait over 60 years for Wöhler's synthesis of urea and the foundation of biochemistry in 1828, and nearly 80 years for Joule's mechanical equivalent of heat. Over 60 years ahead was Joseph Jackson Lister's completion of the compound microscope, which made possible the science of histology, and exactly a century away, the proof of the nature of wound infections by Lister's greater son.

In this atmosphere of embryonic science and primitive equipment Hunter worked with high faith and energy at problems which have resisted, or yielded only grudgingly to, all the resources of the modern world. Not only was there little help for him in the general body of science, but biology itself lay in a certain sense between two tides of inspiration. The gross structure of the animal body had been fully exploited by the great anatomists; the stimulus this had given to knowledge had come to the flood and was ebbing fast. Exact histology lay half a century in the future, and for the want of it most of Hunter's experiments could not be given full exploitation or carried to exact conclusions. It needs all our imaginative sympathy to picture the twilit country in which his labours were carried on—the air is dim and thick, the range of vision short, the appearance of things ambiguous,

> —"the tired waves vainly breaking
> Seem here no painful inch to gain."

We can scarcely resist the sense that there was a prophetic element in the feverish energy with which he set himself to his tasks. For events were to give to such work a new value and a new necessity The long climax of the eighteenth century was passing by. Ahead lay a changed order where social structure would have an unheard-of complication and biological problems an unheard-of urgency. The world seemed to pause, gathering itself for the plunge. The movement would be slow at first but presently would take on a vertiginous acceleration.

In 1774, when Hunter was 46 and in the full tide of work, a young Scotchman named James Watt left Glasgow for Birmingham to become the partner of Matthew Boulton, and with his help to add to the gathering forces of the industrial revolution the immense momentum of the steam-engine. There followed a commercial expansion and a crude industrial hypertrophy which made this country the envy of the world, but which we can now contemplate with only a qualified pride. The growth of trade and population was so imperious and so exuberant that the ordinary hygienic difficulties of social life increased out of all bounds. Industrial areas of population grew unchecked by regard for space, for decency, or for health, while the discrepancy between the rate of development of mechanical and biological knowledge became more and more dangerously wide. The great, but as we can now see rather Grecian, gift made by the North to the South, when James Watt brought the steam-engine to England, was to be repaid in a nobler and less equivocal form when 86 years later a young Englishman named Joseph Lister went to Glasgow. The industrial revolution and the steam-engine had done their work. To the great new industrial populations hospitals had become more and more indispensable, and with every enlargement of their activities they had become more and more dangerous to their surgical patients. The process was a progressive one for a reason that is now obvious, the frequent occurrence of infection from patient to patient being ideally suited to raising the virulence of micro-organisms to the highest pitch and maintaining it there. Surgery in hospitals was in fact already threatening to become extinct.

It was in this darkest hour that the method of Hunter brought off its greatest stroke. Of that method Lister was a devout and explicit disciple. In five years from his going to Glasgow he had solved the problem of wound infection and modern surgery was born.

The lapse of time, with its slow revelation of perspective and proportion in the succession of events, seems more and more clearly to teach the lesson of Hunter's career. It was not as a surgeon, as the maker of his great museum, or even as a discoverer in science, that his greatness was revealed or his influence perpetuated. It was by his example in the use of the scientific method—faithfully, in purity of heart, and with utter devotion to truth.

IV.

We cannot examine even in this hasty way the special instance of a given memorable man without feeling a logical pressure towards the consideration of the more general case, of the meaning and motives that underlie one of the most widespread of human impulses. We assume that the commemoration of heroes is possible and to be desired, and it would perhaps be well in prudence to leave it at that, for the moment we pierce the smooth surface of the assumption we find ourselves in a world of ambiguities and uncomfortable hints. Nevertheless, it is perhaps a healthy exercise in an environment such as this—so solid, so stable, so justly confident—to recall to ourselves sharply that these also are appearances.

Let us begin by planting squarely before us the plain fact of death. I make that specious request not in the expectation that it will be granted, for it is in the very nature of that fact's relation to life that we cannot get a square, collected, and, as it were, binocular look at it. A living mind can form no intimate conception of its own death, and is apparently for ever incapable of comprising two categories which are not opposites, as is often crudely supposed, but superlatively different. And yet in the world of gross reality the expectation of death for the individual is the one prospect for which the attestation of experience amounts most nearly to philosophic certainty. This radical antinomy in the life of every conscious being, in spite of having been the chief preoccupation of the speculative mind since it came into existence, remains and must remain unresolved. Among the by-products of these secular activities is the strange jumble of sense and fantasy that makes up our attitude towards the memory of the dead.

In even its most sober and enlightened moments mankind has regarded the dead with fear and pity. In other moments the feeling has risen to awe and reverence, or has sunk to a strange blend of horror and contempt. The mixture of feeling has withdrawn attention from the central fact, that from the moment of a man's death the memory of him begins to fade, for he has entered on a new state about which the only certainty is that it has nothing to do with life. Nothing can arrest this decline, no memorial can do more than delay it, and as it delays distort. In all our commemorations. whether by word or by plastic art, we make our own pictures and drift increasingly away from the actual man. These are the real ghosts, and nothing brings more certain conviction of a man's death than his memorial. This steadily

increasing divergence between the subject commemorated and the object commemorating has perhaps its consolations when we view the objects of memorial art in our public places. At any rate, we may tell ourselves as we shrink before the marble frock coats and the bronze beards and whiskers, their supposed subjects could scarcely have been like that. However forlorn in the eyes of mere reason the task of keeping in being the veritable personality of the dead, mankind has addressed itself to this object throughout the ages. And its efforts have always illustrated the twin themes of pity and fear. The hunter warrior must have his weapons and his dogs with him in the grave, the head of the house his servants and his wives, and both their finery and their food. So they would be happy and at ease, and the bereaved could feel a little comforted; and if they were happy and at ease perhaps they would not come back.

When the dead man is a great man, another theme is added revealing motives with the same rich human mixture of the noble and the base. The qualities of the hero are worshipped, are desired, and are pursued with devotion and without scruple. Primitive man seems very early to have thought the most obvious way to assimilate the virtues of the hero was to assimilate his body, actually to eat his flesh in the expectation that the spirit which had animated it would also be conveyed and absorbed—a robuster conception of organotherapy than we have yet come back to. Hence arises the commemorative feast which has penetrated Western civilisation with what huge significances we know. A second idea which belonged more definitely to the realm of magic was to make an image of the hero, and so preserve his personality without limit; thus the qualities most desired could be judiciously magnified, and, above all, the whole conception was under control.

But the primitive mind with its dangerous gift of logic could not leave the subject without further rational expansion. If heroic virtues are transferable at death, must one wait upon the operation of mere natural processes? We need not doubt that the plain conclusion has been on due occasion reached. When the slayer was assured of acquiring the virtues of the slain, the crazy logic of memorial piety had reached its climax. This dark theme wanders elusively in the customs and folk-lore of early man, and has its classical seat where in the shadowy southern woods we discern the enigmatic figure of the Priest of Nemi with the Golden Bough.

It would be easy to fall into absurdity by making crude and over-simplified applications of these primitive modes of thought to our modern affairs. Nevertheless we must not forget the ingrained conservatism of Nature; physiology has shown to how large an extent the fundamental chemistry of the body and the elementary working of the nervous system tend to be uniform throughout the animal world.[1] There is good reason to suppose that the same kind of elementary uniformity obtains, and has always obtained, in the reactions of men's minds. If the ideas we have indicated occurred in primitive minds we may be sure that manifest or latent evidences of them will be found in our own. At any rate, we cannot deny that the commemorative feast has its part in modern memorial celebrations; or that man still likes to make magic images of his heroes—though there may be little enough magic about some of them—and to magnify the features he thinks they ought to have, and suppress the others.

It would partake too much of the nature of the overstrained ingenuity I have already deprecated to enlarge upon the traces of what we may call the Golden Bough theme that are to be found in the treatment by society of its men of exceptional character and capacity. Such traces are to be met with, but they are perhaps too elusive to be put into words without an effect of crudity and exaggeration.

V.

The *conscious* and *ostensible* motives under whose influence we approach the commemoration of great men are first, to contemplate in humble piety and emulation a largeness of mind and character that far exceed our own; and, secondly, to seek inspiration from struggles heroically engaged and perhaps triumphantly won. There is no commoner mistake in practical psychology than to suppose that because a motive is admirable it must therefore be strong. If we are to be honest with ourselves we shall have to admit that aspirations such as these do not accompany us very far along the humdrum and ignoble ways of daily life. Many of us, I fear, must have felt guiltily conscious of how little the exhilaration produced by such exercises has been able to compete with the trivial anxieties and ambitions of our own pedestrian lives. Side by side with this weakness in our conscious motives there is, as I have hinted, reason to suspect the presence of other and submerged impulses, the vestiges of a cruder, harsher, type of feeling, which for all their dimness may have a certain ugly strength. When we remember, in addition, the difficulty of establishing and keeping alive the true and unadulterated personality of the dead, we must, I think, confess that the art of ceremonial commemoration has to overcome obstacles of a very formidable kind if it is to avoid becoming increasingly formalised and superficial.

It is possible that a future and more realistic age may reach the conclusion that the time to celebrate its heroes is while they are alive, and not to wait with our remarkable patience until they are safely dead. Such an age will perhaps reason in its clear way that its duty towards its great men is to get as much out of them as it can, and that no piety after their death can equal in effectiveness for the purpose a receptive and sympathetic understanding during their lives.

VI.

It is unfortunately very much easier to recognise a man's greatness after he is dead and when we are freed from the distraction of the actual presence which unhappily tends so often to be odd, angular, and even quarrelsome. It is also an old story that the reception of new ideas tends always to be grudging or hostile. The text is a favourite one, and is apt to become the theme of exhortations which, in addition to having the dreariness of their kind, are pointless because they constitute a frontal attack on an ingrained quality of the mind.

Apart from the happy few whose work has already great prestige or lies in fields that are being actively expanded at the moment, discoverers of new truth always find their ideas resisted. The consideration of this process is often obscured by two assumptions: first, it is supposed that the most harmful resistance comes from obvious and noisy prejudice, and that the resistance of inertia and quasi-rational negation is unimportant; and, secondly, it is supposed that workers in science are of course free from any

[1] Hopkins, Sir Gowland: Anniversary Address, Proc. Roy. Soc., January, 1932, p. 420.

resistiveness beyond a rational conservatism. Each of these assumptions is an almost complete delusion.

The vociferous opposition met with by the ideas of Charles Darwin and of Lister probably did nothing to hinder the spread of these, and probably brought them within reach of a larger number of people capable of accepting them than would have been the case if the opposition had been well behaved. Again it was not noisy prejudice that caused the work of Mendel to lie dead for 30 years, but the sheer inability of contemporary opinion to distinguish between a new idea and nonsense. That this same inability may be shown even by the most eminent workers in science scarcely needs demonstration for anyone at all aware of the history of knowledge, but it may be illustrated by an anecdote which we owe to the third Lord Rayleigh and which is to be found in the delightful *Life*[2] of that very great and wise man. J. J. Waterston was an engineer who interested himself in mathematical physics, and in 1845 wrote a paper on the molecular theory of gases which was 10 or 15 years in advance of his time and anticipated much of the work of physicists no less eminent than Joule, Clausius, and even Clerk Maxwell. The only contemporary judgment on this paper that survives is that of the referee of the Royal Society to whom it was submitted. He said: "The paper is nothing but nonsense." What Waterston might have accomplished if he had had the recognition and encouragement upon which this genius seems to have been unusually dependent, is beyond conjecture. He did not get them. His work lay in utter oblivion for 45 years until it was exhumed by the pious efforts of Rayleigh. He himself lived on disappointed and obscure for many years, and then was overtaken by a yet deeper obscurity, for as the results of some strange accident, or a long gathering impulse of despair, he disappeared and left no sign.

This little story must strike with a chill upon anyone impatient for the advance of knowledge, and especially upon such as are inclined to assume the use of the scientific method to be synonymous with the possession of the scientific mind. Experience fully proves that this assumption is unsound, for there is no limit to the narrowness of the field within which the scientific method may be limited while the rest of the mind is uninfluenced. Even if that assumption is not maintained there are several grounds on which has been defended the proposition that a man of science does well not to traffic very freely with new ideas. It is thought that the necessary concentration on a limited problem is apt to be attenuated by the use of any general intellectual activity. A proposition more worthy of serious attention is that which declares that scepticism and suspended judgment are the very essence of the scientific mind and scarcely to be depended on too much. The conception is no doubt true when its elements are exactly defined. Without such definition these venerable phrases may very easily become mere snares; this is because they are apt to be the expression not of the principles they profess to represent but of far more deeply ingrained and potent impulses.

The mind delights in a static environment, and if there is any change to be itself the source of it. Change from without, interfering as it must with the sovereignty of the individual, seems in its very essence to be repulsive and an object of fear. A little self-examination tells us pretty easily how deeply rooted in the mind is the fear of the new, and how simple it is, when fear is afoot, to block the path of the new idea by unbelief and call it scepticism, and by misunderstanding and call it suspended judgment. The only way to the serene sanity which is the scientific mind—but how difficult consistently to follow—is to give to every fresh idea its one intense moment of cool but imaginative attention before venturing to mark it for rejection or suspense, as, alas, nine times out of ten we must do. In this traffic it is above all necessary not to be heavy-handed with ideas. It is the function of notions in science to be useful, to be interesting, to be verifiable, and to acquire value from any one of these qualities. Scientific notions have little to gain as science from being forced into relation with that formidable abstraction, "general truth." Any such relation is only too apt to discourage the getting rid of the superseded, and the absorption of the new, which make up the very metabolism of the mind.

[2] Life of Lord Rayleigh. London, 1924, pp. 169 et seq.

VII.

In making this small survey of the simpler reflections that are suggested by commemorative occasions such as this, three general conceptions have presented themselves rather prominently. Some of them at least have a practical bearing, and we should therefore be very unworthy disciples of the Master we celebrate if we did not give them what point we can by a particular reference.

The first of these ideas is the familiar truth that if any human institution is looked into at all closely it is found, however admirable its ostensible purpose, to be built out of a strange mixture of elements and to comprise motives, many of them odd and some of them ugly. Memorial ceremonies show themselves to be of this class, and thereby demonstrate that they possess a thoroughly natural origin. In these mild disclosures there is nothing to dismay, and no one need be disconcerted by the homely skeletons in the cupboards of folk-lore. At the same time they perhaps have a use in explaining why the stimulation and enlargement of mind afforded by such commemorations are sometimes less potent than we could wish.

The second conception that emerges is the suggestion that with the process of time it will become increasingly difficult to separate the commemoration of the dead from the responsibility for their treatment during life, or to believe that posthumous honour is in any real sense a reparation for the dead, or a discharge of the liability of the living. It will become less and less possible to regard the discoverer of truth as responsible for the propagation of it, and charged with the duty of converting a stiff-necked generation.

The third and last idea on which our discussion has converged is that if mankind is to profit freely from the small and sporadic crop of the heroically gifted it produces, it will have to cultivate the delicate art of handling ideas. Psychology is now able to tell us with reasonable assurance that the most influential obstacle to freedom of thought and to new ideas is fear; and fear which can with inimitable art disguise itself as caution, or sanity, or reasoned scepticism, or on occasion even as courage.

We may now attempt for a final moment to link these speculations with our primary theme. In his mental environment Hunter must be regarded as a happy man. He lived in the relative intellectual freedom of the best part of the eighteenth century, before its bland sunshine had died in the smoke of industrialism, and before the French Revolution and the reaction to it had deadened speculative thought. He saw, as from a peak in Darien, the

illimitable ocean of biology before him, and he addressed himself unhesitatingly to explore it all. It was in the general level of knowledge and in instrumental equipment that he was less fortunate. When a new Hunter appears he will not be held back by an undeveloped science, and he will find this College able to give him all the facilities with which it has been munificently endowed. Let us hope that he will also find an intellectual environment where even his most revolutionary ideas will be planted in a nourishing soil and bathed in a genial air.

ARTERIAL ATONY AND ARTERIO-SCLEROSIS.

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This paper sets out the thesis that arterio-sclerosis is only one phenomenon in a constitutional systemic disease affecting more particularly unstriped muscle. The disease is by no means restricted to local areas; on the contrary, it attacks the whole vascular system simultaneously. The local changes, which we call atheroma, athero-sclerosis, ossification of the arteries, and a number of other names, serve the purpose of strengthening the walls of excessively dilated blood-vessels at points of greatest strain. Arterio-sclerosis is a disease that sets in at every age, that can be arrested, and that can be cured in the early stages and beneficially influenced in the later stages; it is not an ailment of old age which must of necessity be progressive and incurable.

Even by purely local observation, it would be possible to distinguish between two forms of arterio-sclerosis—namely, the arterio-sclerosis of old age, due, in the strict sense of the words, to wear and tear, with its local atheromatous calcified areas as secondary mechanical hysteresis, and arterio-sclerosis as a disease in itself, a constitutional systematic allergic primary affection of the smooth muscles, the sympathetic nerves, and the connective substance. These two types appear clinically quite independently of each other. Even though the pathological anatomical alterations show no characteristic indications of the one or other type of the disease, and even if the histological pictures are vague or very much alike, we are, nevertheless, compelled at the bedside to make a clear distinction between these two forms of the disease for a very great number of reasons. Just as we are quite content to look upon presbyopia as a natural wear-and-tear disease of the eye but are wont to regard all hypermetropia originating from other causes as a disease, sui generis, so also must the "presbyopia" of the arteries be distinguished from arterio-sclerosis as a disease.

The essential characteristic of arterio-sclerosis cannot be the deposition of lime, for at every age, even in infancy, lime is found in the arterial walls in a surprisingly large number of cases. The primary cause of arterio-sclerosis is the weakening both of the muscular and of the elastic elements of the walls of the blood-vessels. If the weakened blood-vessels are not able to offer sufficient resistance to the blood pressure they become stretched and dilated. At points particularly exposed to dynamic pressure alterations occur which in the end serve no other purpose than to raise the resistance of the walls. This process of alteration, which is completed by the deposition of lime plates, offers protection against rupture. Calcification and ossification are, therefore, not a disease but a healing process. The first local changes caused by excessive wear and tear in parts of the vascular walls are anatomically characterised by proliferation of the tunica intima at quite an early stage.

L. Ernst, in his excellent investigation, was able to study the differentiated structure of the muscular and elastic elements of the vascular walls. These investigations substantiate a clinical assumption which we made some time ago—namely, that the various layers and the specific elements of the arterial walls are involved to a varying degree in the disease process. Corresponding with the longitudinal and transverse tonicity of vascular walls, there must be longitudinal and transverse muscles that act independently of each other. The tone of the specific elastic elements must also be taken into account, because longitudinal extension narrows a blood-vessel, and an excised blood-vessel becomes shorter. The two muscular symptoms are functionally, and therefore also clinically, quite dissimilar in their behaviour. The annular muscles counteract more particularly the internal pressure of the blood-vessel, and the longitudinal muscles its longitudinal extension, while the elastic fibres of the artery regulate both strain and pressure.

Pathological Anatomy.

In addition to these arguments, mention must also be made of the following pathological anatomical factors:

(1) The atheromatous changes and calcifications occur at points most exposed to the impact of the dynamic force and where the whirl of the blood stream is strongest. Consequently the points of predilection must lie at the bends of the channel; in the aorta the points involved are the bulb and the posterior wall, and, more particularly, those points where the arteries branch off. Further, calcification chiefly takes place in those arteries most subject to wear in consequence of increased local pressure; for instance, in manual labourers in the arteries of the right arm, in waiters in the arteries of the legs.

(2) It is exceedingly uncommon for an artery to rupture at the point of calcification. So, even in sanguineous cerebral apoplexy, we hardly ever see a rent in the calcified area, practically always in an apparently intact part.

(3) Everywhere in the human body where encapsulation takes place as the result of a morbid process (tuberculosis, echinococcosis, myomata, cysts of all kinds) we find calcareous deposits besides an accumulation of cholesterin. There is nothing to prove that arteries in this respect fall into a different category.

(4) That the more heavily taxed parts of the blood-vessel require an arterio-sclerotic protection can be proved by the nodular form of arterio-sclerosis. We find the latter in arteries which are curved and show numerous branches—e.g., the coronary arteries, the carotids, the cerebral vessels, the subclavian artery, and the arteries of the intestines. Arteries that can easily be moved in their substratum, such as the arteries running across the joints, are not involved (G. Oberndoerfer). In unilateral goitre, the curved, laterally displaced, carotid artery becomes calcified, while the normal undisplaced carotid remains unchanged. On the other hand, diffuse arterio-sclerosis appears in arteries which in parts have a straight course with but few branches. Here there is a uniform thickening along the whole length of the vascular walls due to the action of increased local

pressure, such as we see in the blood-vessels of the extremities.

(5) While the arteries in a normal cadaver, true to their name, are empty, Egon Plesch found that the arteries of dead arterio-sclerotics were still filled with blood, an indication that the tonicity of the arteries, as an *ultimum movens*, was not sufficient to drive the blood into the veins.

(6) At operations the small arteries in the healthy body retract and require no ligature, while in arterio-sclerotic subjects very small arteries must be ligated.

(7) In order to prove the correctness of our contentions we conducted investigations in the Pathological Institute of the Virchow Hospital, Berlin (Prof. Anders) with apparently unchanged sections of arteries from arterio-sclerotic subjects. The sections showed the usual attenuation of the walls corresponding to their atonic state.

We inserted a cannula in a small branch of the brachial artery and so filled a ligated section of the artery, about 3 to 4 cm. in length, with a 10 per cent. solution of formalin under a pressure of about 2 metres. In order to harden the artery, we surrounded it with cotton-wool packing saturated with a solution of formalin. The filled arterial section was excised 1 cm. below the ligature to enable us to obtain a longitudinal histological preparation showing both distended and unstretched sections of the artery in uninterrupted sequence. Transverse sections of the distended and undistended parts of the artery could also be examined by this procedure. A very large number of preparations were made, but I only illustrate here the most characteristic examples.

The section seen in Fig. 1A is from a healthy body. In the undistended section of the longitudinal preparation (i.e., below the ligature) the lamina elastica interna has the regular undulating lines characteristic of contracted arterial walls in death. In the section of the artery which had been placed under pressure (i.e., from above the ligature) the undulating lines are drawn out, so that the lamina elastica forms an almost straight line.

Fig. 1B shows a transverse section of a healthy artery not under pressure (magnification × 48).

Fig. 1C shows a healthy artery under pressure (magnification × 74). The differences in the lamina elastica under the varying conditions are not pronounced; only under pressure the undulations are flattened out. The entire wall in both specimens is attenuated; this fact appears when allowance is made for the difference in magnification.

In Figs. 1D and 1E are seen macroscopically unchanged sections from a very heavy sclerotic artery. In the part not subjected to pressure (Fig. 1D) the layers of the lamina elastica interna are split up, and the individual undulations are less uniform; they are also not so marked as in the healthy artery and show a knob-like thickening at various places. In the part subjected to pressure (Fig. 1E) the undulation in some parts of the lamina elastica is obliterated, in other parts the lamina elastica is ruptured. These ruptured pieces have shrunk irregularly. The difference in the thickness of the tunica media corresponds to the dilatation of the vessel, and the tunica intima of the apparently intact artery shows the proliferation generally found in arterio-sclerotic cases.

On the whole, the preparations prove that sections from even a macroscopically unchanged artery of a sclerotic subject show pathological changes, and that the disease is not local but involves the whole system.

Ætiological Proofs.

Every influence that is capable of weakening the organism to such an extent as to produce a general atony can also without hesitation be held responsible for arterial atony and for calcification. All the ætiological factors enumerated disconnectedly in the text-books can, therefore, be brought into one system and classified.

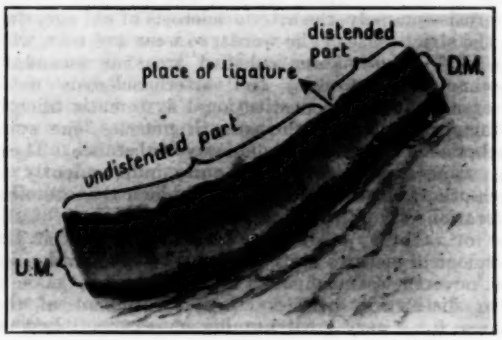
It is not my intention to enumerate every one of these ætiological moments. On close analysis they will be found to fall naturally under the simple heading of atony. Whether it is an acute or chronic infectious disease that is involved, or alimentary insults, intoxications of any description, endogenous hormonic injuries, nervous influences, alcoholic abuse or the effect of disorders of metabolism such as diabetes mellitus, gout, or obesity, it will always be found that these influences at some stage induce an atonic state, as a result of which a purely mechanical and secondary sclerosis develops in the arteries.

It is well known that arterio-sclerosis can be produced experimentally in animals by feeding them on a diet rich in cholesterol or by administering digalen, nicotine, aliphatic aldehyde, adrenalin, &c. In each of such intoxications there is a sudden excess of action that induces a state in which the tonicity of the blood-vessels is more or less seriously impaired —a state which can only with great reserve be compared with the slowly developing condition in humans. The latest idea, that spontaneous arterio-sclerosis is due to cholesteræmia, is entirely fallacious; it is probably a sequela but certainly not the cause of the calcification.

At a time when sport is so popular as to-day, I do not wish to leave it unmentioned that athletes show marked calcification by the age of 35 or 40, that they are seldom capable of great physical effort when they attain middle life, and that most of them die before they are 50. The explanation for this is quite simple; for after all heavy bodily exertions we have, by way of reaction, a severe relaxation of the blood-vessels which lasts quite a long time. The high blood pressure, meeting the arteries when in this state, produces the damage we so frequently observe in athletes.

As regards the influence of age in the ætiology of arterio-sclerosis, we must above all break away from Virchow's statement that every one has arterio-sclerosis after his fortieth year—in so far as it both

FIG. 1 (A).



Longitudinal section of a healthy artery after application of a ligature. U.M. = undistended tunica media. D.M. = distended tunica media.

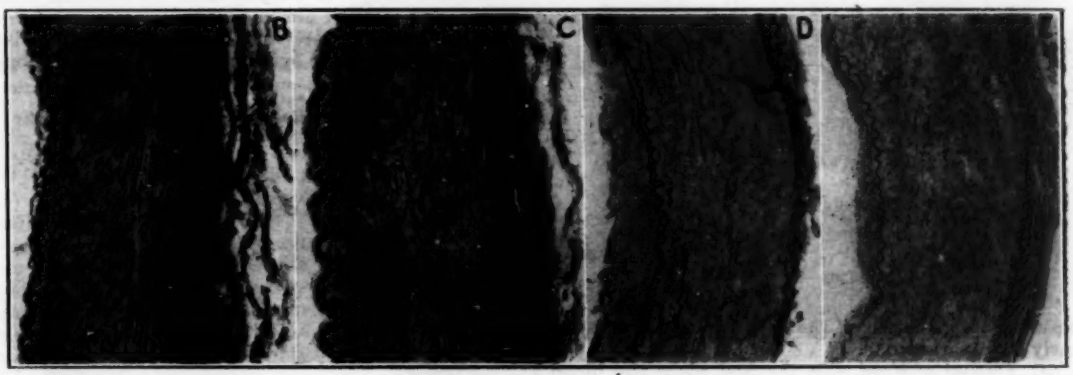
expresses a threat and induces resignation. Arterio-sclerosis is not necessarily a disease peculiar to old age; it is often found in youthful people, and often absent in the aged; and when it does make its appearance in old age it rarely has any serious consequences.

The Statistical Argument.

The post-mortem examination of healthy young soldiers who fell during the war revealed a surprising prevalence of arterio-sclerosis. Moenckeberg, in his very carefully prepared statistics, was able to prove that 44·5 per cent. of soldiers between the ages of 21 and 30 years and 62 per cent. of those between the ages of 31 and 40 years showed arterio-sclerotic

changes, most of them involving the coronary arteries. Similar observations have been made in other countries. The statistics show that arterio-sclerosis is by no means necessarily progressive, and also that it must be curable. Seeing that the mortality figures for arterio-sclerosis are something like 6 per cent. of the total mortality, a fraction which bears no relation whatever to the morbidity figures, it follows on the one hand that we have over-estimated the danger of arterio-sclerosis, and on the other that many cases must have recovered spontaneously. Anitschkow and his school have reported complete cures, even in severe and far-advanced arterio-sclerosis (Wolkoff).

FIG. 1 (B–E).



Transverse sections of (B) healthy artery not under pressure; (C) healthy artery under pressure; (D) diseased artery not under pressure: (E) diseased artery under pressure.

The Clinical Proofs.

I shall confine myself to the symptoms characteristic of arterial atony.

(*a*) *Volume of pulse.*—The tonoscillogram [1] gives us a volume and pressure curve and enables us not only to determine the pressure of the blood-vessel itself apart from the blood pressure, but also the volume of the pulse. In cases of arterial atony the increase in the volume of the pulse was, in many instances, several times greater than normal. As the pulse volume cannot increase without dilatation of the blood-vessel, it readily follows that arteries must be atonic, with attenuated walls in the early stages of arterio-sclerosis. From the height of the greatest oscillation as measured at the rings of the tonoscillogram it is possible to calculate the absolute volume of the artery by introducing a so-called normal volume scale.

(*b*) *Vascular pressure.*—The tonoscillogram also shows that the vascular pressure is considerable less than the normal—a further indication of the reduced elasticity of atonic arteries. For instance, Fig. 2A shows a normal artery with an opening pressure of 24 mm. Hg, and Fig. 2B taken from an atonic artery, shows an opening pressure of only 8 mm. Hg. The tonoscillogram of a thickened vascular wall in a late stage of arterio-sclerosis shows a vascular pressure of 50 mm. Hg. Moreover, the sudden rise in the oscillation and the sharp bend at the point of maximum pressure are proof that the parting of the non-elastic wall followed as suddenly as it did in our experiments with thin-walled non-elastic tubes (prepared amniotic coating). Quite in accordance with these observations, the normal tonoscillogram (Fig. 2A) shows, besides an opening pressure curve of normal length, a uniform increase in the excursion of the oscillations; in the thick-walled artery (Fig. 2C) this increase corresponds to a drawn-out curve. In Fig. 2B, on the other hand, the oscillations rise suddenly without transitional stages and diminish with equal suddenness.

An atonic vascular system harbours serious dangers for the whole circulation. An important factor is that the air chamber action of the arteries (Otto Frank and others) is impaired. To compensate for the loss of these circulatory components the heart must become hypertrophic, and that at a stage when the capillary resistance is hardly yet increased. In this way, where the total pressure is normal or below normal, the included blood pressure can be high simply because the vascular pressure is very low.

(*c*) *Blood pressure.*—While H. Huchard regards an increased blood pressure as a regular concomitant of arterio-sclerosis, E. v. Romberg states that "in accordance with anatomical observations there is as a rule no increase in blood pressure in uncomplicated cases of arterio-sclerosis measured with the Riva-Rocci apparatus (Sawada, Groedel, Ferranini, Lukacs); only in 12·3 per cent. of the patients examined did Sawada find a moderate increase."

I am of the opinion that in the early stages of arterio-sclerosis both high and low blood pressures can be found. The important factor is not so much the absolute blood pressure as its extraordinary instability. Occasionally variations of 50 mm. Hg and more can be observed within the space of a few minutes. Tonoscillography enables us to record graphically and to follow accurately changes in blood pressure under the most diverse conditions. If the variations are accompanied by other characteristic tonoscillographic indications, these afford further corroboration of the correctness of the diagnosis.

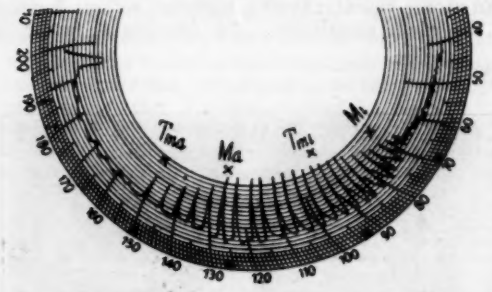
The stability of the blood pressure is vouchsafed by the prompt compensatory reaction of the elastic and muscular apparatus of the blood-vessels. If this apparatus is impaired, as it is in arterial atony, even the smallest demand made upon it must produce variations in pressure, which in health are readily compensated.

Further diagnostic characteristics of arterial atony can be obtained by the tonoscillographic method of measuring blood pressure, if the relation between the

[1] Plesch, J.: "Tonoscillographische Blutdruckmessungen und die Deutung der Blutdruckkurve," Abderhaldens Handbuch der biologischen Arbeitsmethoden, 1931, v., 773–844.

minimum pressure and the amplitude of the pulse be examined under varying influences (work, mechanical, thermal, and other irritations). A displacement of the values can only be caused by a rise in the maximum pressure or by a drop in the minimum pressure. The

FIG. 2 (A).—*Tonoscillogram in Health.*

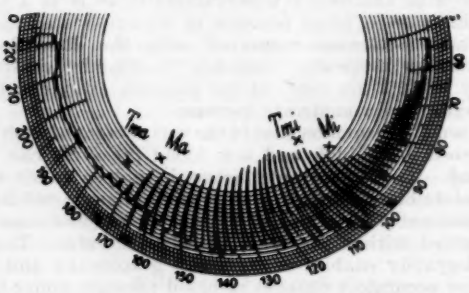


Total maximum pressure (Tma)	=	150 mm. Hg.
Maximum pressure (Ma)	=	126 ,, ,,
Total minimum pressure (Tmi)	=	93 ,, ,,
Minimum pressure (Mi)	=	69 ,, ,,
Opening length (Tma – Ma)	=	24 ,, ,,
Compression length (Tmi – Mi)	=	24 ,, ,,

nature and the extent of the displacement are apparently of importance.

(*d*) *Amount of blood.*—In the first place the blood amount serves the purpose of filling the blood channels. A dilated vascular system of necessity involves an increase in the amount of blood. The measurements I made determining the amount of blood in the system showed that in the early stages of arterio-sclerosis there is a "status plethoricus" characterised by a blood increase of up to 100 per cent. (cf. J. Plesch, *Zeit. f. klin. Med.*, 1922, xciii., 272). It is clear that in a dilated vascular system the circulation of the blood, *ceteris paribus*, must be slower. This retardation was noticed by L. Traube, and has since then been verified by more accurate methods.

FIG. 2 (B).—*Tonoscillogram of an Atonic Subject.*

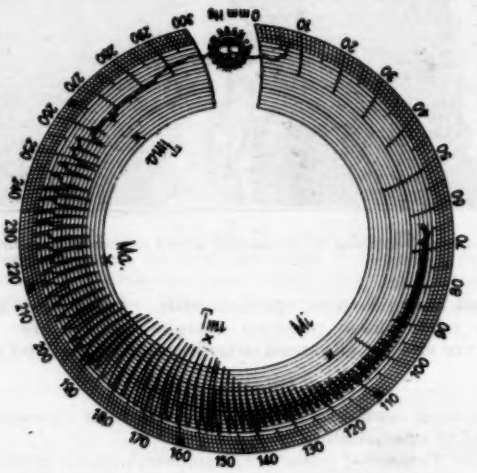


Tma	= 173 mm. Hg.	Tmi	= 104 mm. Hg.
Ma	= 165 ,, ,,	Mi	= 96 ,, ,,
Tma–Ma	= 8 mm. Hg.	Tmi–Mi	= 8 mm. Hg.

(*e*) *Roentgenography.*—By means of X rays we can distinguish longitudinal and transverse atony at the aorta. In transverse atony we see the familiar picture (Fig. 3A) of the dilated aortic arch, more particularly in the ascending part of the aorta. In longitudinal sclerosis there may be a picture as shown in Fig. 3B, which up to now has received little attention. The heart is suspended from the aorta, as it were by a drawn-out elastic band, its apex burrowing deep into the diaphragm, with which its longitudinal axis forms an acute angle. It takes up a vertical position, and not a horizontal position as in transverse sclerosis. G. Holzknecht drew attention to the fact that, in cases of calcification, the left superior bend of the aorta shadow (that is, the point where the aortic arch goes over into the descending aorta) as a rule stands out more prominently as a result of the elongation of the vessel. This can be seen in Fig. 3, but on the fluorescent screen it was seen still more distinctly in consequence of the lively pulsation already observed by Holzknecht. The two types of atony can be distinguished from one another roentgenologically at a time when the vascular wall is neither thickened nor calcified.

(*f*) *Sinuous blood-vessels.*—A symptom of arterial atony that strikes the eye immediately is the sinuous

FIG. 2 (C).—*Tonoscillogram of an Arterio-Sclerotic Subject.*



Tma	= 265 mm. Hg.	Tmi	= 160 mm. Hg.
Ma	= 215 ,, ,,	Mi	= 110 ,, ,,
Tma–Ma	= 50 mm. Hg.	Tmi–Mi	= 50 mm. Hg.

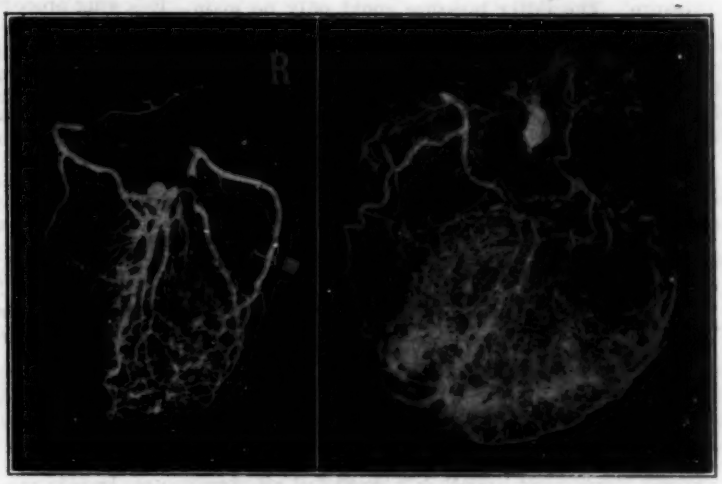
temporal artery. This was always regarded as a characteristic sign of calcification, but the sinuous temporal artery is usually soft and has delicate walls. The winding course of the artery is due to the fact that it is held in a fixed position at a number of points by connective tissue, and that when the tonus of the elements working in the longitudinal direction relaxes, the artery becomes longer and then curls between the points of fixation under the influence of the blood stream.

We are not splitting hairs when we make a diagnostic distinction between longitudinal and transverse atony, because this separation is of prognostic value. As a rule it can be said that the longitudinal atony is prognostically more favourable than the transverse. Moenckeberg was the first to draw attention to the fact that individuals with sinuous temporal arteries live longer than arterio-sclerotic subjects that have no such winding arteries. This was confirmed by Wenckebach.

Hearts with severe sclerosis and without sclerosis were, according to a technique of my own, filled with mercury through the coronary artery. The preparations so obtained in the Pathological Institute (Prof. Anders) and the Roentgen Institute (Dr. Bucky) of the Rudolf Virchow Hospital by my co-worker Dr. Egon Plesch were afterwards stereoscopically radiographed. Of the large number of photographs taken only two will be reproduced here. In the normal

heart (Fig. 4A) the arteries have a more or less straight course; the blood-vessels are uniformly wide and become gradually narrower according to the number of branches they send off, until finally they form a fine network of capillaries with numerous anastomoses. The left ventricle is better served with capillaries than the right. The diameter of larger vessels is comparatively small, and the walls offer resistance to the injection pressure. On the other hand, in the sclerotic specimen (Fig. 4B) the arteries, in spite of the narrow coronary ostium, are dilated. Besides this they show miliary aneurysmatic dilatations. Furthermore, the main arteries, as also the arteries of the second and third order, are lengthened and curled up like a corkscrew. The whole picture shows the arteries as thin dilated vessels without resistance. Stereoscopically we can see the differences between the two preparations still better. We will report fully elsewhere on the details obtained by the above new method, which do not apply to the heart alone but also to all the other organs of the body.

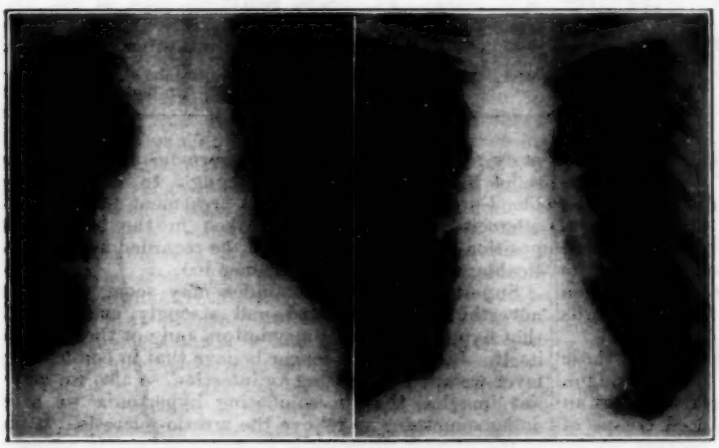
FIGS. 4 (A). 4 (B).



Radiograms showing arteries of (A) normal and (B) sclerotic heart.

(*g*) *The anginal condition.*—Parallel with a change in the vascular system of the heart there must be a change in its blood-supply, which not only affects the heart's capacity for work but also leads to those sensations which, according to the extent of the change, we call either oppressive feeling or angina pectoris. I believe that this theory is applicable to all forms of anginal conditions occurring in the various organs, such as intermittent claudication and dyspragia angiosclerotica, from sclerotic dizziness to epilepsy. We assume that when an artery which has lost most of its elastic resistance is over-dilated, it reacts with a hyper-compensatory spastic contraction. Within certain limits this contraction is the only effective regulator of the velocity of the blood stream. It sets in physiologically and corresponds to the dilatation that preceded it. On the other hand a pathologically changed vascular system will respond to over-dilatation with a spasm. Attacks of angina pectoris are all produced by such spastic paroxysms. It follows, therefore, that every spasm in a vascular area must have been preceded by a dilatation. The form, size, and course of the blood-vessels as shown in our pictures (Fig. 4B) justify this assumption so far as the heart is concerned. For the other organs the proofs must still be supplied by similarly injected preparations. But, even now, according to clinical experience—particularly with intermittent claudication—there is hardly any doubt that the conditions in other organs are similar to those found by us in the coronary area.

FIGS. 3 (A). 3 (B).



A, Radiogram of heart in transverse atony showing dilated aortic arch. B, Radiogram in longitudinal sclerosis.

(*h*) *Elevated diaphragm.*—The meteorism so frequently met with in arterio-sclerotics and the high position of the diaphragm can best be explained by an unsatisfactory blood circulation in the atonic arterioles. In the intestines there is a constant development of flatus. Normally these gases are easily absorbed by the blood and reach the lungs by way of the vena cava inferior and the pulmonary arteries, where they are soon passed off in consequence of the difference in tension between the expiratory gases and the external air. Otherwise it is not possible to explain the fœtor ex ore in fermentative dyspepsia which does not emanate direct from the lungs or upper air passages. After a garlic meal the breath smells for 24 hours and more. If the circulation in the intestines is impaired, the gases remain in the intestines and inflate them. It has not yet been determined whether this increased inflation of the intestines drives the diaphragm upwards or whether the latter is elevated by suction in consequence of the raising of the respiratory middle position in individuals with weak hearts (a change which I have already reported [3]).

[3] Zeit. f. exp. Path. u. Ther., 1913, xiii. 1.

Pressure from below and suction in this case work in the same direction; furthermore, these forces are here acting on an atonic diaphragm. In any case it is physiologically easier to assume that an atonic diaphragm is elevated by suction from the negative intrathoracic pressure of Donders rather than that it is raised from below by the positive abdominal pressure. The latter pressure could only be maintained by a constant tonic contraction of the abdominal walls. As a rule the intestinal gases are under minimal positive pressure (the flatus can only be expressed by a powerful contraction of both the abdominal muscles and the diaphragm!). So long as the abdominal muscles give way to the inflation pressure, the positive abdominal pressure will hardly act on the diaphragm. Moreover, if it is the intra-abdominal pressure that raises the diaphragm, the diaphragm must subside and take up its normal position again when, in the living or the dead, the abdomen is opened. In fact, however, it retains its raised position after the abdominal cavity has been opened, which proves that it is not forced upwards by the abdomen but is held up by suction.

The conditions are therefore analogous to those obtaining in paresis or paralysis of the diaphragm. The primary cause of presclerotic meteorism is not an increased generation of gas but a reduced escape of gas. This distinction is important because of its far-reaching therapeutic consequences. Meteorism is analogous to the feeling of oppression in the heart and numbness in the legs, whilst Ortner's disease, as a paroxysm of spastic contraction of the intestinal blood-vessels, is analogous to angina pectoris and intermittent claudication. If I wished to bring these diseases unconstrainedly under the same heading, I would regard their common cause as a spasm induced by way of reaction after an over-dilatation of the corresponding atonic vascular section. In this way I dispense with the hypothesis hitherto relied on: that every paroxysm is due to an increased nervous irritability.

Case No.	Weight of body in kg.	Age.	Blood pressure in mm. Hg.		Hæmoglobin.		Total hæmoglobin.		Amount of blood.		Remarks.
			Max.	Min.	O_2 Cap. in Vol. per cent.	In g. per 100 blood.	In g.	Per cent. body-weight.	In kg.	Per cent. body-weight.	
1A	77·0	57	250	190	16·0	11·9	692	0·89	5787	7·5	Arterio-sclerosis, angina pectoris, No œdema. Albumin positive.
1B	74·5	—	200	165	18·5	13·8	644	0·82	4560	5·8	Same patient after 10 days' NaCl and N-free diet.
2A	77·0	63	170	120	17·8	13·3	625	0·81	4705	6·1	Arterio-sclerosis, angina pectoris, intermittent claudication.
2B	75·5	—	135	100	18·5	13·8	568	0·76	4136	5·3	Same patient after 8 days' NaCl and N-free diet.
3A	64·0	58	134	88	11·8	8·8	675	1·53	7070	11·0	Arterio-sclerosis. Myodegen. cordis. Heavy œdema.
3B	55·0	—	145	100	16·2	12·1	845	1·54	5233	9·5	Same patient after 5 days' NaCl and N-free diet. Total diuresis in 5 days 141.
4A	58·0	61	202	85	7·0	5·7	241	0·41	4230	7·3	Arterio-sclerosis with coronary sclerosis and aortic insuff. No albumin. Chronic bronchitis.
4B	57·0	—	117	85	9·0	6·7	222	0·39	3310	5·8	Same patient examined on 9th day of NaCl and N-free diet.
5A	64·0	55	224	94	15·3	11·2	586	0·91	5235	8·2	Arterio-sclerosis, aortic and mitr. insuff., chron. bronch. with emphysema.
5B	62·5	—	161	62	16·0	11·9	518	0·83	4360	7·0	Same patient examined on 8th day of NaCl and N-free diet.
6A	54·0	63	160	91	19·4	14·5	502	0·93	3450	6·4	Arterio-sclerosis, senile tuberculosis, chron. bronchitis.
6B	54·0	—	131	68	16·0	12·0	448	0·83	3135	5·8	Same patient examined on 10th day of NaCl and N-free diet.
7A	68·0	43	153	87	16·2	12·1	656	0·96	5425	8·0	Arterio-sclerosis, chron bronchitis, emphysema.
7B	65·0	—	133	71	18·0	13·4	644	0·99	4810	7·4	Same patient examined on 10th day of NaCl and N-free diet.

Therapy.

The prophylaxis and treatment of atony in its early stages consist chiefly in removing as far as possible the injurious ætiological elements. In addition, the following procedures are recommended.

(*a*) ***Regulation of blood pressure.***—First of all the over-taxed circulation must be relieved. When the patient lies down the circulatory forces need only act in the horizontal direction. The exclusion of the hydrostatic pressure factor leaves only the dynamic and hydraulic pressure factor involved and immediately relieves the heart to an enormous extent. This relief is very often in itself enough to reduce the blood pressure sufficiently. A treatment for arterio-sclerosis that is not undertaken in the horizontal position must, to say the least, be regarded as impracticable, and cannot be recommended.

Superfluous as the reminder may seem, it must nevertheless be repeated and strongly emphasised that hypertonia is only a symptom and not the disease itself. Just as we no longer believe that in combating fever we are also fighting an infection, so also we may not imagine that in combating hypertonia we are doing something to relieve the arterio-sclerosis. It is of the utmost therapeutic importance, and it cannot be sufficiently emphasised, that it is only the increased blood pressure that enables us under the altered circulatory conditions to save life at all. The physician who is determined to reduce the blood pressure by force, without first combating the causes responsible for the high blood pressure, commits malpractice. The body compensates suitably in the necessary direction, but the compensation usually overshoots the mark. The most important thing, therefore, for the physician to do is not to work against compensa-

tion, but rather to direct it. In this way a good deal can be done to bring down excessive blood pressure to the individual level. Further than this, no direct measures should be undertaken against hypertonia. Most medicaments for reducing blood pressure act by paralysing the blood-vessels and are, therefore, therapeutically absurd, because they are more inclined to help the further development of arterio-sclerosis than to prevent it. It is therefore intelligible why those remedies that produce experimental arterio-sclerosis are most effective in reducing blood pressure. When they are used, the blood pressure does well but the patient is ill. Still less rational are remedies given to "loosen the lime in the arteries." Only in the height of folly can the idea be conceived to free the body from its protecting armaments.

(*b*) *Reduction in the amount of blood.*—The necessary increase in the blood volume is also frequently exceeded, so that we are compelled to reduce the amount artificially. Blood-letting has most certainly celebrated its highest triumphs in the presclerotic plethora—i.e., arterial atony—and to-day it is still our most heroic remedy for this condition. If there is one objection to it, it is the brutal way in which the quantity of the blood is suddenly reduced. The atonic arteries are compelled to adapt themselves accordingly, but not without a considerable disturbance of the circulation and the exchange of body fluids. Of course, there are urgent cases in which we cannot avoid this evil, but it is more advisable to reduce the blood volume by means of a diet poor in nitrogen and salt.

We have been able to prove in a series of investigations [3] that it is possible to reduce the blood-volume far more effectively by dieting and fresh air, not only in healthy individuals and also in arterio-sclerotic subjects (vide Table). In the first few days diuresis sets in and subjective discomfort is reduced; the heart becomes quieter, the breathing freer, the head clearer, &c. If it is desired to stabilise these effects, the course must be continued for four to six weeks. A valuable adjuvant to the treatment is arsenic; I employ the old well-tried Fowler's solution. Only when arsenic is not tolerated do I give the usual phosphorus preparations.

It is practicable to repeat the nitrogen- and salt-free diet [4] every year for three to four weeks and also to introduce a "dietetic day" once a week to relieve the vascular system. This scheme has a great resemblance to certain ritual measures recommended by founders of religions (Lent, Ramadan, half and whole days of fasting, &c.), and it could therefore well be described as a Biblical diet. It has proved of value through thousands of years and requires no special recommendation. The task of medical investigation is not continually to discover this diet anew but to retain it in its original form, to set up indications for its employment and, last but not least, to investigate why it is most effective in spring. Every new adaptation of the body, whether in consequence of dietetic, physical, hygienic, or any other measures, is only of use if induced periodically. To stabilise a nitrogen- and salt-free diet simply because it has rendered good service after six weeks would be fraught with great danger and must on all accounts be avoided. It goes without saying that better results are obtainable with the dietetic fresh-air treatment if the patient has absolute mental relaxation and psychic rest.

If we had the courage to break away from pocket-book prescriptions, we should manage, in the large majority of cases, without cardiac tonics. The idea of "digitalis at all costs" is objectionable. The prolonged administration of small doses of iodide of potassium is injurious rather than useful. On the other hand, where arterio-capillary fibrosis has already developed, iodide of potassium in large doses up to 8·0 g. daily for ten days, without regard to minor complaints of iodism, is recommended. The treatment should be repeated two or three times at intervals of ten days. At the end of the dietetic fresh-air course moderate exercise and gymnastics may be allowed. Over-exertion in sport must be firmly vetoed. Cold water treatment, baths, drinking cures, and such like are subject to special indications; it would be impracticable to enumerate them all.

The symptomatic treatment is a matter of choice. Only for meteorism, as it is not so well known, I would like in conclusion to recommend tincture of asafœtida, about 15 drops in gelodurat capsules before meals.

[3] Zeit. f. klin. Med., 1922, xciii., 241.
[4] Ibid., p. 283.

DIAGNOSIS OF AMYLOID DISEASE BY THE INTRAVENOUS INJECTION OF CONGO-RED.

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Until recent years the diagnosis of amyloid disease rested entirely on the physical findings of enlargement of the liver and spleen, together with the appearance of albuminuria in cases of prolonged suppuration. In 1923–24 Bennhold, who for 20 years had been using Congo-red as a stain for sections of amyloid tissue, discovered that the intravenous injection of this dye would disclose the presence of amyloid during life.[1] Since then the test has been investigated and the technique modified by Strasser [2] and Nathan [3] on the continent, and by Bookman and Rosenthal [4] in America, but I know of no English work on the subject.

An institution such as the Liverpool Open-air Hospital for Children, Leasowe, where there are many cases of chronic and severe suppuration, mostly tuberculous in origin, offered an excellent opportunity for a study of the test. The following is an account of the investigation undertaken.

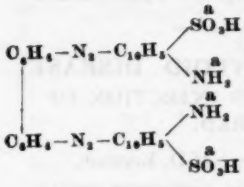
The rationale of the work depends on the essential fact that amyloid material adsorbs Congo-red. An intravenous injection of an aqueous solution of this dye is made, and the percentage decrease of the dye-content of the plasma (or serum) over a period of one hour is estimated colorimetrically. In the normal person an amount of 10–30 per cent. is found to have disappeared. In cases of amyloid disease there is a decided increase in the rapidity with which the dye leaves the blood, and a diminution at the end of one hour of anything between 30 and 100 per cent. may be recorded.

Keith, Rowntree, and Geraghty,[5] working with Congo-red in the determination of blood volume, found that, on injection into the blood stream, it became homogeneously distributed in the plasma in four minutes and began to disappear in ten minutes. Normally all the dye had left the blood at the end of 24 hours. Smith [6] states that in normal dogs it is slowly taken up by phagocytes in various parts of the body, and that there is also a slow excretion by the liver into the bile.

In severe cases of amyloid disease Bennhold found that the dye had often left the blood completely at the end of one hour. In only one other condition did he find a corresponding rapidity of disappearance—namely, in pure tubular or parenchymatous nephritis (four cases). Here the dye quickly left the blood via the kidneys and was found in large quantities in the urine, whereas in the normal only a trace appears in this way. In glomerular nephritis and nephrosclerosis (15 cases) he found normal values. Strasser has confirmed these findings and, in addition, points out that occasionally in cases of splenic tumour of non-amyloid origin the dye leaves the blood at a faster rate than the normal.

CHEMISTRY.

According to Mann,[7] Congo-red results from the action of tetrazo-diphenyl on naphthionic acid and has the following formula, containing two amido and two sulphonic acid groups. The red colour is changed to blue on the addition of weak acids.



The chemical nature of amyloid material is still doubtful. The old theory that it consists of chondroitin-sulphuric acid in combination with protein has been criticised by Eppinger and others who, on analysing masses of pure amyloid deposit, found no sulphur, phosphorus, or carbohydrate.[8] Karczag [9] states that the specific staining of amyloid depends on its strongly electro-negative charge as compared with collagen. Hyaline has a still weaker negative charge. In tissue degeneration generally the tendency is to a lowering of the charge; therefore amyloid must come from substances of strong negative character and hyaline from collagen or elastic tissue.

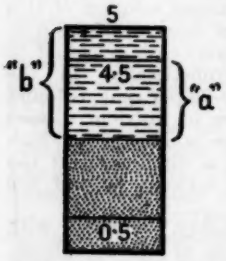
TECHNIQUE.

Various modifications of Bennhold's original technique have been made, some workers using serum, but the majority preferring plasma. For the present series of cases the method described by Strasser was adopted, with certain minor modifications. Grubler's Congo-red was used throughout, since the commercial preparation employed in chemical work is unfitted for intravenous injection by the presence of lead, arsenic, and other impurities.

A 1 per cent. solution of the dye in hot distilled water was cleared by repeated filtration through paper and sterilised by boiling. All solutions were used within 12 hours of being made. (Strasser observed that solutions more than 12 hours old tended to produce shivering attacks and a rise of temperature.)

The state of digestion in relation to the test is immaterial except that a rich fatty meal shortly before is contra-indicated. The patient having passed urine, the dye was injected into a basilic vein in amounts of 0·25 c.cm. per kg. of body-weight. (The quantity for the children in the present series ranged from 6–12 c.cm.) Four minutes after injection 5 c.cm. of blood were withdrawn, preferably from another vein, and one hour after injection a second 5 c.cm. sample was taken. Specimens of urine were obtained 15 minutes and 45 minutes after injection.

FIG. 1.



Each blood sample was immediately transferred to a small flat-bottomed tube graduated at 0·5, 4·5, and 5 c.cm., which had previously been filled to the 0·5 c.cm. mark with 3·8 per cent. sodium citrate solution. The tube was filled to the 5 c.cm. mark with blood, which was then mixed with the citrate by very gentle rotation. The two tubes were then centrifuged together at 2000 revolutions for 15 minutes, by which time the corpuscular element was entirely precipitated. Two measurements (in millimetres) were then made on each tube (see Fig. 1). The height "a" from the top of the corpuscular layer to the 4·5 c.cm. mark represents the height of the plasma alone. The height "b" from the top of the corpuscular layer to the 5 c.cm. mark is that of the plasma plus the 0·5 c.cm. of citrate originally added. This factor b/a was used in the calculation (see below) to correct any variation in the proportion of liquid to corpuscular elements of the blood, as this proportion is not necessarily the same in each case. The two samples of plasma were then pipetted off and compared in a Duboscq colorimeter, using Plasma I. as the standard. The following illustrates the calculation in a normal case:—

	Plasma I.	Plasma II.
Colorimeter reading ..	7·0	8·7
b/a factor	22/18	19/16

Calculation:—

Plasma I. = 7·0 × 22/18 = 8·55
Plasma II. = 8·7 × 19/16 = 10·33

Then, if Plasma I. (the standard) be equivalent to 100 per cent., Plasma II. $= \frac{8·55}{10·33} \times 100 = 83$ per cent.—i.e., a decrease of 17 per cent.

TABLE I.—*Advanced cases of surgical tuberculosis with chronic sinus formation. Ages 7–18 years. Regions affected: hip, spine, and knee.*

Case.	Duration of disease in years.	Percentage decrease, Congo-red. Normal 10–30.	Amyloid clinically.	Notes.*
1	6	100	Yes.	L. 6; S. 4; alb. + +.
2	13	100	"	L. 2; alb., trace; recovering.
3	2	38	?	Alb. +.
4	5	100	Yes.	L. 5; S. 2; alb. + +.
5	6	100	"	L. 5; S. 3; alb. + +.
6	5	46	"	L. 2; S. 1; alb. + +.
7	6	60	?	S. ?; recovering.
8	4	100	Yes.	L. 4; S. 2; alb. + +; died.
9	10	56	?	No physical signs now.
10	7	55	?	No physical signs.
11	8	100	Yes.	L. 6; S. 3; alb. + +.
11a	8	100	"	Conf. test 3 months later.
12	5	55	"	L. 1; alb., occasionally.
13	11	100	"	L. 2; alb. + +.
14	6	100	"	L. 4; S. 3; alb. + +; died.
15	4	100	"	L. 3; S. 2; alb. + +; died.
16	5	23	No.	—
17	5	22	"	Occasional albumin.
18	4	26	?	" "
19	5	5	No.	—
20	6	8	"	—
21	3	18	"	—
22	4	22	?	Occasional albumin.
23	4	20	No.	—
24	7	19	"	—
25	15	25	"	—
26	4	6	"	—
27	5	10	"	—
28	3	28	"	—

* L. = liver; S. = spleen; conf. = confirmatory; figures = inche below costal margin.

None of the above had more than the faintest macroscopic trace of dye in the urine.

TABLE II.—*Control cases of early surgical tuberculosis without sinus formation.*

Case.	Site of disease.	Percentage decrease, Congo-red.
29	Adenitis.	28
30	"	24
31	"	11
32	"	12
33	Peritonitis.	30
34	Lupus.	28
35	Hip-joint.	21

Only a *faint trace of dye* appeared in the urines.

The following personal observations on technique were made: (1) No ill-effects were seen either during or after the test. The dye was injected as rapidly as the vein would take it. (2) Owing to the usual difficulties with children, slight paravenous injections were occasionally made accidentally. These were followed next day by a bright red imbibition of the surrounding skin, which was quite painless, but which

sometimes persisted for as long as four weeks. (3) Hæmolysis and clotting spoiled a few tests. Blood containing Congo-red showed a tendency to clot rapidly. This was overcome by rinsing the tubes and syringes with citrate solution prior to withdrawal. Becker [10] has noted this effect on coagulation time, and considers that Congo-red may be of definite value as a hæmostatic. (4) Difficulty was sometimes experienced in obtaining a perfect match in the colorimeter, especially in cases of about 50 per cent. decrease. This was obviated by (*a*) reducing the stronger plasma to a known dilution with distilled water, or (*b*) adding to each plasma two drops of concentrated hydrochloric acid. This latter gave a blue coloration to each plasma which was more suitable for matching. Three readings were usually made at different settings of the standard and the average worked out. (5) In the cases recorded in Table I. as 100 per cent. decrease, Plasma II. had the straw-coloured appearance of normal plasma and the colorimeter was not used.

RESULTS.

Table I. shows that of 17 cases clinically suspected of amyloid disease, the diagnosis was confirmed by the test in 15. Six of these cases (Cases 3, 7, 9, 10, 18, and 22) were only suspected by reason of albuminuria, but the test revealed the presence of amyloidosis in the first four and its absence in Cases 18 and 22. In 12 advanced cases of chronic suppuration with no clinical manifestations of amyloid disease, the results of the test were within normal limits, as they were also in the seven cases of early surgical tuberculosis used as controls (Table II.). The three following cases of enlarged spleen of non-amyloid origin gave normal results, thus failing to confirm Strasser's observation that these cases introduce a fallacy into the test.

CASE 36.—Age 24. Spleno-medullary leukæmia. Liver normal. Spleen below umbilicus. Congo-red decrease 15 per cent. Faint trace in urine.

CASE 37.—Age 10. ? Congenital syphilis. Liver and spleen each 2 in. Congo-red decrease 28 per cent. Nil in urine.

CASE 38.—Age 10. Splenic anæmia. Spleen 3 in. Liver normal. Congo-red decrease 8 per cent. Nil in urine.

Case 39 (chronic parenchymatous nephritis) confirmed in a striking way Bennhold's statement that in this condition the dye rapidly leaves the blood via the kidneys.

CASE 39.—Age 27. Chronic parenchymatous nephritis. Non-protein nitrogen 28 mg. per cent. Blood pressure 115. Albumin 2 per cent. Granular and hyaline casts. Deficient urea concentration. Urine 27 oz. per day. Œdema and ascites. Congo-red decrease 80 per cent. Large amounts of dye present in urine 15 and 45 minutes after injection.

Further research on these lines regarding the differential diagnosis of the various types of nephritis should prove of considerable value. The test does not decide whether, in Case 39, amyloid disease was present in addition to the renal condition. The absence of dye (in any quantity) in the urines of the amyloid cases may be explained by (1) the rapid removal of dye by the amyloid material, and (2) the fact that the damage to the amyloid kidney, at any rate until the disease is well advanced, is glomerular rather than tubular. In two of the amyloid cases the results obtained by the Congo-red test were confirmed by post-mortem examination.

POST-MORTEM FINDINGS.

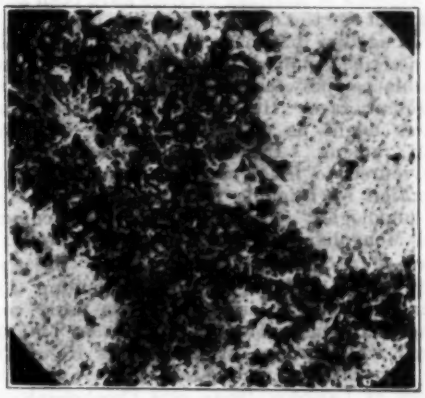
Post-mortem examinations were done on Cases 8 and 14.

CASE 8.—Autopsy two months after dye test. No macroscopic staining of organs. Advanced amyloid disease of liver, spleen, kidneys, and small intestine.

CASE 14.—Autopsy one week after dye test. Advanced amyloid disease of liver, spleen, kidneys, small and large intestines, suprarenal, and pancreas. Liver, spleen, and kidneys definitely stained red by the dye. It was found impossible to demonstrate the presence of Congo-red in the amyloid tissue on section, even after acidifying.

Congo-red as a Stain for Amyloid.—A paraffin section of the liver of Case 14 was stained by Congo-red (Fig. 2),

FIG. 2.



Section of liver showing (dark) areas of amyloid tissue stained by Congo-red. Normal liver cells (pale) counterstained with hæmatoxylin.

using Bennhold's technique.[11] (Stain 15–30 minutes in 1 per cent. Congo-red. Place in lithium carbonate 15 seconds. Differentiate with 80 per cent. alcohol. Counterstain with hæmatoxylin.)

Waldenström [12] has described a diagnostic method in which material for microscopic examination is obtained by puncture of the liver with a large-bore needle. The Congo-red method possesses the obvious advantages that it gives a quantitative result and that it is also somewhat less drastic.

Clinical observations on the above cases show that, in a certain number, healing of the tuberculous condition is followed by involution of the amyloid disease, ultimately leading to complete recovery. This view is supported by Sir Robert Jones (personal communication), Waldenström, and Walker.[13] It is therefore of prognostic value to detect its presence and to follow its course. The use of Congo-red provides a comparatively accurate means of so doing, and the claims of this dye to a place in the clinical or pathological consideration of amyloid disease cannot therefore be disregarded.

I am indebted to Dr. T. Hartley Martin, the senior medical officer, for his kindness in facilitating the work at the Leasowe Hospital, and to Prof. J. H. Dible for his advice and assistance. My thanks are also due to Prof. John Hay and Drs. Capon, Cunningham, and Wallace Jones for permitting me to have access to various cases.

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THE BLOOD GROUPING OF MONGOLIAN IMBECILES.

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A number of different theories have been advanced to account for the occurrence of the condition known as "Mongolian imbecility." When Langdon Down [1] first described and named these cases he observed a resemblance between them and members of the Mongolian race. He further suggested that the likeness might be due to admixture of Mongolian blood among Europeans. Crookshank [2] has endeavoured to follow up this idea, supporting his contention by bringing forward many resemblances or "homologies" which he believes are common to racial Mongolians and this class of imbecile.

Owing to Landsteiner's discovery of the four blood groups, and the subsequent finding that the distribution of the four groups was fairly constant among individuals of the same race, but that it differed when groups of individuals from different races were taken, a simple test can be applied to the theories of Langdon Down and Crookshank. Quite distinct differences have been observed between Europeans and Chinese, for instance, in regard to the distribution of the blood groups, and an intermediate race, like the Russians, shows an intermediate distribution. Hence, if it could be demonstrated that English Mongolian imbeciles showed an affinity to the Mongolian races in blood group distribution, this would be very favourable to Langdon Down's hypothesis.

In order to investigate this point, 166 imbeciles from institutions in London and the eastern counties were tested. All were diagnosed as being of the Mongolian type, by common consent of the medical officers in charge of them. The grouping was carried out on these cases in the following way. A few drops of the patient's blood were taken into 1 c.cm. of normal saline containing 1 per cent. sodium citrate. Two drops of the suspension so obtained were then tested on a slide with drops of serum of Group II. and Group III. respectively. The serum was supplied by Parke, Davis and Co., from St. Mary's Hospital inoculation department. In cases where there was any doubt about the agglutination the experiment was repeated.

The following figures were obtained :—

Number of Mongolian Imbeciles of English Nationality Belonging to Each Blood Group.

I.	II.	III.	IV.	(Jansky)	Total.
65	78	12	3		158

In addition to these there were eight Jewish cases, of which one belonged to Group I., five to Group II., two to Group III., and none to Group IV. The question of the correct interpretation of these figures now arises.

In order to account for the proportional distribution of the various groups, Bernstein [3] advanced the theory that two agglutinogens (A and B) were inherited as dominant mendelian characters (allelomorphs), and they were both dominant to the same recessive character. His theory has met with general acceptance.[4,5] The frequencies of the two characters A and B—i.e., the probabilities of their occurrence—can be directly obtained from the distribution of the blood groups thus :

$$\text{Frequency of A} = 1 - \sqrt{(\text{I.}) + (\text{III.})}$$
$$\text{Frequency of B} = 1 - \sqrt{(\text{I.}) + (\text{II.})}$$

where (I.), (II.), (III.), &c., are the frequencies of the blood groups in the population studied. The frequencies of A and B are very convenient for classification of the blood groups of different races. The incidence of the character B is high in Mongolian races as compared with the incidence of A, whereas in European countries the reverse is true, A being much more common than B. Unfortunately there are no large figures available for the distribution of the blood groups among the general population of London and the eastern counties to act as a standard with which to compare the group of Mongolian imbeciles. A control series of 225 non-Mongolian mental defectives from the Royal Eastern Counties Institution tested by the same method, however, gave the following distribution :—

Number of Control Cases Belonging to Each Blood Group.

I.	II.	III.	IV.	(Jansky)	Total.
96	107	15	8		226

The next table shows a number of examples of the distribution of blood groups in different populations for comparison with the writer's figures. They are taken from Snyder,[4] and in each case the values of the frequencies of A and B have been calculated.

Distribution of Blood Groups in Different Populations.

Race and investigator.	No.	Percentage of persons in each group.				Percentage frequency of the two characters.	
		I.	II.	III.	IV.	A.	B.
English (Mongolian imbeciles) (Present author.)	158	41·1	49·4	7·6	1·9	30·2	4·9
English (non-Mongolian mental defectives) (Present author.)	225	42·5	47·3	6·6	3·5	29·9	5·2
English (soldiers) (Hirschfeld, 1919.)	500	46·4	43·4	7·2	3·0	26·8	5·2
Norwegians (Jewell.)	436	35·6	49·8	10·3	4·3	32·3	7·6
Russians (Hirschfeld.)	1000	40·7	31·2	21·8	6·3	21·0	15·2
North Chinese (Pekin) (Lui and Wang, 1920.)	1000	30·7	25·1	34·2	10·0	19·5	26·0
Manchus (Fukamachi, 1923.)	199	26·6	26·6	38·2	8·5	19·5	27·0
North American Indians (pure stock) (Snyder.)	453	91·3	7·7	1·0	0·0	4·0	0·6

It will be seen by noticing the frequencies of A and B in the populations referred to in the Table that the English Mongolian imbeciles resemble very closely the control group of English non-Mongolian defectives. There is no indication here that the Mongolian imbeciles are the result of crossing of English with any Mongolian race, for among them the incidence of the character B is low, as in the other groups of English people. The figures for Jewish cases are too small to argue from, but neither do they suggest any admixture of Mongolian blood. In fact, what peculiarity there is in the blood grouping of the imbeciles points in the opposite direction. As compared with Hirschfeld's figures,[7] the proportion of A is rather high, and this appears in an excess of Group II. over Group I. But a high incidence of A is not uncommon in the nordic races—e.g., Scandinavians—and the population of the eastern counties

may tend to be generally richer in A than the rest of England.

These findings seem quite inconsistent with the theories of Langdon Down and Crookshank. Moreover, an hypothesis was put forward by Crookshank [2] that Mongolian imbeciles were related in some way to orang-utan monkeys. As far as the blood groupings are concerned, this hypothesis finds no justification. Of the six orangs classified by Landsteiner and Miller,[8] two belonged to Group II., three to Group III., and one to Group IV. To these numbers can be added the results of two orangs tested by me: one of these was Group III. and the other Group IV. It is clear, even from such small numbers, that these monkeys, unlike the Mongolian imbeciles, show a high incidence of the character B.

To summarise, then, the distribution of the four blood groups (which is characteristic for different races) has been studied in 166 Mongolian imbeciles. The results do not support the hypothesis that this class of imbeciles has any relationship to the Mongolian race.

I am much indebted to the medical superintendents of Darenth Training Colony, the Fountain Mental Hospital, Leavesden Mental Hospital, the Mutual Sanatorium, the Manor, and the Royal Eastern Counties Institution for their permission to carry out tests on the patients at these institutions, and to the Medical Research Council and the Darwin Trust for financial assistance.

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CLINICAL AND LABORATORY NOTES

NEW ANTIMONY PREPARATIONS IN THE TREATMENT OF MEDITERRANEAN LEISHMANIASIS AND JAPANESE (OR EASTERN) SCHISTOSOMIASIS.

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THE cases described below, one of Mediterranean leishmaniasis, the other of Japanese schistosomiasis, are recorded for two reasons; firstly, their rarity in this country makes them of interest, and secondly they illustrate the use of new antimony compounds in their treatment.

MEDITERRANEAN LEISHMANIASIS (KALA-AZAR).

A girl, aged 3½ years, was admitted to the Hospital for Tropical Diseases, London, on Sept. 24th, 1931.

Previous history.—Born in England, she was taken at the age of 4½ months to Malta where she lived for three years, then returning to England. She had never had measles, scarlet fever, or other ailments of childhood.

Present illness.—Towards the end of her time in Malta the mother noticed that the child was getting pale, was running an irregular temperature, was losing some weight, and was not making proper progress; so on arrival in England she was brought to the Hospital for Tropical Diseases.

Examination.—On general inspection the patient was noted to be very pale, was listless, looked ill and was very irritable, crying on the least provocation. The heart, lungs, and central nervous system did not show any abnormality. The abdomen was pot-bellied in appearance with protuberance of the umbilicus. The spleen was enlarged, the lower edge reaching the level of the umbilicus. It was firm in consistency and slightly tender. The lower edge of the liver was palpable, two fingers-breadth below the right costal margin and dullness extended upwards to the level of the fifth interspace in the right nipple line. There was no evidence of ascites.

Diagnosis.—On clinical grounds a provisional diagnosis of kala-azar was made, this being supported by the blood picture, which showed an anæmia, accompanied by a leucopenia. Confirmation was finally obtained by liver puncture, Leishman-Donovan bodies being found in the fluid obtained.

Treatment.—In view of the child's size and the difficulty of entering a vein repeatedly, it was decided to use von Heyden 471 (Stibosan) intramuscularly. An injection of 0·025 g. was given and as this caused no untoward results the amount was raised to 0·05 g. and then to 0·075 g., the injections being given on alternate days. By the time a total of 0·625 g. had been given, the temperature had begun to fall slightly, and there was a small but definite improvement in the child's condition. Progress, however, was not as satisfactory as one would wish, so a more potent compound—namely, Neo-stibosan—was tried and this was given intravenously, a method which proved easier than had been anticipated.

The improvement was rapid and striking. Within a fortnight after starting the intravenous neo-stibosan the temperature was normal, and with the exception of the enlarged spleen, the child seemed to be rapidly regaining good health. The spleen did not begin to decrease in size until about a week after the injections had ceased; it then became steadily smaller, but was still palpable on discharge, two and a half months after admission. The liver began to decrease in size at about the same time and was normal on discharge. The amount of neo-stibosan given intravenously was 0·075 g. per dose, at first given on alternate days but later with intervals of two days, 0·800 g. in toto being administered.

TABLE I.—*Dosage.*

Day of treatment.	Von Heyden 471 intramuscularly.	Remarks.
1	0·025 g.	—
3	0·05	Temperature 103° F.
5	0·05	—
7	0·05	Child very ill.
9	0·05	Blood: R., 3,240,000; W., 3600; Hb. 45 per cent.
11	0·05	—
13	0·05	—
15	0·075	—
17	0·075	—
19	0·075	—
21	0·075	Improvement, but still temperatures up to 100·2°.
Total	.. 0·625 g.	
—	Neo-stibosan intramuscularly.	—
23	0·075 g.	—
25	0·075 intravenously.	Marked difference noted in condition. Symptoms much improved.
27	0·05 g.	—
29	0·075	—
31	0·075	—
33	0·075	—
36	0·075	Temperature normal.
39	0·075	—
42	0·075	—
45	0·075	—
48	0·075	Child practically well. Blood: R., 4,020,000; W., 10,000; Hb., 60 per cent.
Total	.. 0·800 g.	

The case is of interest in that it indicates that in this case as least neo-stibosan showed itself to be much more potent than the older compound, von Heyden 471 (stibosan). Against this it might be argued that the difference in the effect was produced because the one drug was given intravenously whereas the other was given intramuscularly, but in actual fact a marked difference was noticed in the child even after two preliminary intramuscular injections of neo-stibosan had been given. Table I. gives the dosage.

After three weeks of normal temperature following the conclusion of treatment the patient was discharged from hospital on Dec. 10th, 1931, as cured, the mother being instructed to report progress in due course. The first report dated Jan. 10th, 1932, states that the progress has been maintained and that there are no signs of the disease, the child being well and happy and extremely active. On Jan. 21st the mother brought the child up for examination. She stated that progress had gone on uninterruptedly and there were no further signs of the disease. The examination confirmed this, showing a perfectly healthy little girl. The spleen had gone down very considerably since the time of leaving hospital and was now just palpable under the costal margin. There was no further distension of the abdomen, the colour of the conjunctiva and lips was perfect, and there is no doubt that the child is cured.

JAPANESE SCHISTOSOMIASIS.

Mr. B., an Englishman, aged 29, was admitted to the Hospital for Tropical Diseases on Dec. 7th, 1931, complaining of swelling of the muscles of the arms and legs, accompanied by a rash 15 weeks ago, and of general weakness.

History.—He was born in London, where he has lived most of his life. In March, 1928, went to Shanghai and remained there until October, 1931. Has always lived an athletic life and until the present condition arose has never had any serious illness. Apart from childish ailments, he had had no illness of note. No venereal disease.

Present illness.—This started at the end of July, 1931. At this time he was rowing in his spare time and was in the habit of bathing in the river and creeks afterwards. He first noticed swellings on the flexor surfaces of the arm and forearm and on the anterior surface of the thigh. These swellings were tender and were covered with a vivid red rash which felt warm but did not itch. At the time that this appeared he began to feel tired and listless and this feeling has persisted since. The rash was accompanied by evening fever, both disappearing after two or three days. Since the illness started he has lost weight, but has had no trouble with micturition or with his bowels.

A friend of his who was in the habit of bathing with him also developed similar symptoms at the same time, and was found to be suffering from *Schistosoma japonicum* infection.

State on admission.—Very pale, no signs of any rash or muscular swellings. Conjunctiva not anæmic. Systems: heart and lungs normal. Abdomen: spleen just palpable, liver edge palpable, liver not enlarged upwards. A skin test for filariasis was negative, while that for bilharziasis was positive as was also the complement-fixation test. Blood: Wassermann reaction negative. The blood count was as follows:—

Red cells	5,120,000	Polymorph.	35%
White cells	9,400	Large mono.	4%
Hæmoglobin	90%	Lymphocytes	39%
		Eosinophils	20%
		Mast cells	2%

No malarial parasites found.

Urine: no deposit; no albumin or sugar. Fæces ova of *S. japonicum*, scanty; unfertilised ascaris ova present no protozoa.

Treatment and progress.—It was decided to treat the case by intramuscular injections of neo-antimosan (Fouadin) as Khalil had reported favourably on this preparation in the treatment of schistosomiasis in Egypt. The whole course of ten injections was given in 13 days, no untoward effects were produced, and the ova rapidly disappeared from the stools. Table II. shows the amount of neo-antimosan given.

TABLE II.

Day of treatment.	Injection of neo-antimosan intramuscularly.	Remarks.
1 Dec. 15th, 1931.	1·5 c.cm.	No reaction. Few ova found.
2	3·5 „	—
3	5·0 „	Three slides examined, one ovum found.
5	5·0 „	No ova found.
6	5·0 „	Four slides examined, one ovum found.
7	5·0 „	—
9	5·0 „	No ova found.
10	5·0 „	No ova found.
12	5·0 „	—
13 Dec. 27th, 1931.	5·0 „	No ova found.

The patient left hospital on Dec. 28th, 1931, and on Jan. 6th, nine days later, the fæces were examined and no ova found. Since that date he has reported again saying that he now feels well and fit in every way, and that all signs of weakness have disappeared.

A CASE OF PERFORATION OF THE BLADDER.

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IN the routine of emergency surgery it is not often that a strikingly unusual case occurs, and its occurrence is perhaps sufficient excuse for description, even though no great addition is thereby made to surgical lore.

A man, aged 61, was recently admitted to the Miller General Hospital with a history of having had retention of urine for several days, relieved by his doctor with a catheter. Two hours before admission he was seized with sudden acute abdominal pain following an attempt to micturate: there was no vomiting. In an attempt to correlate his story one thought at once of rupture of the bladder, but catheterisation produced 20 oz. of heavily infected urine, without emptying the organ. The abdomen was generally tender and guarded, these features being most marked in the epigastric region where was found a veritable diagnostic herring in the shape of a tense fatty hernia of the linea alba. The cause of this retention was not obvious since the prostate was small. Examination of the central nervous system revealed absent knee-jerks with normal pupils.

The patient's general condition was poor, his heart being enlarged and his arteries tortuous. However, I decided to explore his hernia under a local anæsthetic.

A sac about 1 in. long and ½ in. wide was found in the middle of the fat, and was empty. On removal some blood-stained fluid could be seen in the peritoneal cavity. The orifice being enlarged, a gush of urine expelled itself, although one could still feel a full bladder above the pubis. A general anæsthetic being initiated, a suprapubic incision was made and much urine voided from the abdomen. An anchor suture passed through the fundus of the bladder cut out immediately and leakage had to be stopped with a purse-string. Fortunately, the actual perforation was close by and showed itself to be the size of about the head of a pin, surrounded by a yellowish sloughing area, and expelling gushes of urine even now. It was surrounded by a purse-string. At this time the fundus of the bladder had the consistence almost of wet blotting-paper and must have been even more attenuated before the burst. Appearances were not in the least suggestive of a traumatic rupture. The bladder was opened and the prostate felt. There was no intravesical projection, and only a slight cleft in front. The bladder mucosa showed a foul cystitis. Proceedings were terminated by draining the pouch of Douglas and the bladder.

On the following day the patient's condition appeared to be quite good, but he succumbed within 48 hours. Post-mortem examination confirmed the operative findings, and suspected condition of cardiovascular system, without definite evidence of syphilis. It transpired that he was on

(*Continued at foot of opposite page.*)

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE.

SECTION OF THERAPEUTICS AND PHARMACOLOGY.

AT a meeting of this section held on Feb. 9th, the President, Dr. E. P. POULTON, being in the chair, Dr. E. C. WARNER read a paper (by himself and Dr. A. C. HAMPSON) on investigation and treatment of certain cases of

Disease of Muscle and Nerve.

Some of the diseases investigated were, he said, self-limited—i.e., if left untreated the patient would recover. Others over which the preliminary research extended were, however, in quite a different category, such as progressive muscular atrophy, the trend of which was always downhill. As no hopeful line of treatment was known for this kind of case, any line which seemed to afford hope was worth careful study. Some of the conditions showed a deficiency of calcium and an excess of phosphorus in the cerebro-spinal fluid. It was not their view that those diseases were solely due to calcium deficiency, they were rather regarded from the standpoint of soil and seed.

In *chorea* there was found to be a slight diminution of blood-calcium, while in the cerebro-spinal fluid there was a 13 per cent. diminution of calcium in comparison with the figure after recovery. The C.-S.F. determination was of value in that it showed the concentration of active inorganic calcium, which might vary independently of the total serum calcium. It also indicated the degree of concentration of calcium salts bathing nerve-cells and fibres. Corresponding with the low cerebro-spinal fluid calcium values in chorea there was found to be a raised phosphate value. Preliminary results indicated that this might be due to a raised blood phosphatase. The total calcium content of the blood was not necessarily the measure of the active calcium in it; 50 per cent. of the total calcium was present in an inactive form, it could not pass through a capillary membrane nor through an artificial one. The other 50 per cent. was diffusible calcium, able to pass through a membrane; this was the only portion capable of ionisation. Important was the diffusible or ionic portion.

Probably the cerebro-spinal fluid phosphate was a measure of the active blood phosphate. A lowered calcium figure rendered the cell membrane more permeable and more liable to be attacked by toxins. Excess of phosphates in the bathing fluids would depress the ionisation of the calcium. The effect of parathyroid extract on the blood was to raise the calcium and lower the phosphate. In a recent case of parathyroid tumour the serum calcium before operation was 15·33, and the plasma phosphorus at the same date 2·2; whereas eleven months after operating on the tumour the calcium was 9·3, the phosphorus 3·6. And in a case of parathyroid tetany the condition would not have been diagnosed had not the cerebro-spinal fluid been examined.

THE VALUE OF PARATHYROID.

A valuable drug to use in bringing about a calcium rise and a fall in phosphate was Parathormone. The difficulty in its administration was the considerable difference in response of different individuals.

A boy, aged about 10, with active chorea was given parathormone. Before treatment his calcium figure was 4·7, instead of the normal 5·4. Nearly a month later, after receiving 0·2 c.cm. of parathormone twice daily, there was no improvement and no effect was noted on the fluid. For another six weeks he was given the same dosage of parathormone supplemented by calcium chloride intramuscularly, and six weeks thereafter, with the calcium at 5·7, he was completely free of his chorea.

In the resistant cases of chorea an adequate amount of vitamin D and ultra-violet light were needed. The price of parathormone—nearly 3*s*. per c.cm.—rendered it expensive for regular administration. All the subjects of chorea examined showed a heightened electrical excitability in the nerves, and responded to smaller currents than children did normally. From 75 to 80 per cent. of cases of chorea were benefited by parathormone, some of them strikingly so. In the first 20 cases the chorea ceased in four and a half weeks, on the average. A girl, aged 11, had such severe chorea that she rubbed through three sheets within 24 hours of admission, but under this treatment the chorea had gone in 16 days.

In three cases of advanced progressive *muscular atrophy* parathormone was of definite value, though in two it was of no value. Of three cases of the Werdnig-Hoffmann type, two died of intercurrent infection before treatment was begun, but the third did well. In three cases of pseudohypertrophic muscular dystrophy the findings were normal, in contrast with an instance of facio-scapulo-humeral dystrophy which had a cerebro-spinal fluid calcium value of 4·42, which improved after parathormone.

A striking result was achieved with the substance in a case diagnosed as *Schilder's encephalitis*. Its use was suggested by the low calcium and the high phosphate. The patient when seen was comatose, with white optic discs. He was aged 9, and was admitted because of involuntary incoördinate movements of arms, legs, and face. There was no heart lesion. He quickly became almost blind. His diaphragm seemed to be moving in response to his heart beat. The cerebro-spinal fluid showed no evidence of infection. The calcium and phosphate values improved, and the discs almost resumed their normal appearance and colour. It must be very rare, said Dr. Warner, for optic degeneration to recover after having been so marked.

In conclusion it was pointed out, for the benefit of anyone wishing to work on these lines, that the amounts of calcium and phosphorus dealt with were very small, requiring accurate analysis.

Dr. HAMPSON added that the boy with Schilder's encephalitis won a scholarship last year, at the age of 12, a good indication that the remainder of his cortex had recovered.

(*Continued from previous page.*)

extended leave from a mental hospital, suffering from a senile type of dementia. He was thought to have no syphilitic taint, the blood Wassermann reaction being negative.

Thus the exact cause of the retention which preceded rupture of the bladder was not ascertained, but it is possible that the case was one of tabo-paresis simulating the depredations of advancing years. The ulcerative nature and small size of the perforation is of interest, and also the fact that it had existed for two hours with a bladder which still contained well over a pint of fluid.

My thanks for permission to publish this case are due to Mr. Meyrick Thomas, under whose care it was admitted.

DISCUSSION.

The PRESIDENT thought the series of cases narrated were striking, though the work was still in a preliminary stage. If all refractory cases of chorea could be cured by giving parathormone and calcium salts, it would represent a great advance. He recently had a case of exophthalmic goitre in the active stage of which there was a loss of calcium. Possibly this loss might be the cause of the great weakness in these patients. The blood-calcium was 5·4.

Dr. HAMPSON said there was a group of people, showing clinical hyperthyroidism, with low calcium values; they had irritable nerves with low threshold for electrical stimulation. They were also those who passed into a state of tetany after operation. He thought they had parathyroid deficiency.

Dr. N. GRAY HILL said that at Queen Mary's Hospital, Carshalton, parathyroid was given in a number of cases of chorea, but it was an expensive preparation for institutional use; less costly methods succeeded. Some cases of chorea cleared up on nothing but rest and a quiet life, while others remained choreic in spite of any treatment. Treatments which promoted rise of blood-calcium were good for chorea. It seemed to him scarcely justifiable to take the cerebro-spinal fluid of choreic patients for examination, though if its examination was shown to be important that scruple would have to be waived. At his institution only blood examinations were made. Treatment was by diet, ultra-violet light, and calcium preparations, largely by mouth. But no two choreics followed an identical course.

Mr. W. C. W. NIXON said he had investigated a series of cases of eclampsia and of pre-eclamptic toxæmia of pregnancy. In two cases, in which he had obtained blood during the fits, the serum calcium was found to be between the normal limits. During the premonitory twitchings, before the actual eclamptic state, the serum calcium was not reduced. He did not assess the calcium value in the cerebro-spinal fluid, but he hoped to do so. He had given calcium gluconate, but without effect on the fits.

Dr. P. ELLMAN said that in 1926–27 he had investigated calcium metabolism in cases of pulmonary disease, both active and chronic; he found that the calcium content of the blood varied within the normal limits of 9 to 11 mg. He concluded that the metabolism of calcium in the tuberculous subject could be influenced by calcium and parathyroid as surely as the sugar in the urine could be influenced by a course of insulin. In a case in which the blood-calcium was low and the symptoms were active, with cough, sputum, hæmoptysis, night sweats, and loss of weight, when the calcium content had been raised to 11 the symptoms largely subsided and the patient gained in weight.

Dr. PARKES WEBER suggested it might be well worth while to try the effect of this treatment in recurrent angio-spastic attacks in small children, a rare condition akin to Raynaud's disease. These attacks might almost be regarded as vasomotor tetany.

Dr. E. STOLKIND commented on the striking result in the case of Schilder's encephalitis, especially the staying of the atrophy of the optic discs and the marked progress to recovery. Some of his own patients who suffered from encephalitis lethargica had subsequently passed Civil Service and other competitive examinations.

Dr. DOROTHY HARE asked whether, in view of this work, the readers of the paper would agree it was better to cease estimating blood-serum calcium, and concentrate on the cerebro-spinal fluid values, as being the more likely to afford therapeutic aid.

Dr. HAMPSON, in reply, said he had not worked much on the calcium content in cases of eclampsia, but he had gone into the phosphate metabolism. His conclusion was that these cases belonged to a group almost opposite to those now being discussed, and probably parathormone would be more likely to do harm than good in them.

Dr. WARNER, in reply, said that as lumbar puncture was not dangerous it should be done whenever it was likely to yield results valuable in treatment. There were a number of diseases which showed increased electrical excitability; Graves's disease was one. He and his colleague did not regard parathormone as a specific drug. They found low calcium and high phosphorus values, and they tried to rectify that. The only drug which caused a rapid response appeared to be parathormone. Its effect, however, was not lasting, a small dose was not operative after eight or ten hours, which pointed to the need of giving it twice daily. Perhaps after producing the main effect progress could be maintained by other means. The striking benefit was seen in the hopeless dystrophic cases, in which there was no question (as in chorea) of improvement if left alone.

CLINICAL SECTION.

Exhibition of Cases and Specimens.

A MEETING of this section was held on Feb. 12th, with Mr. CECIL P. G. WAKELEY, the President, in the chair.

The PRESIDENT showed a patient, aged 57, with an enormous *Left Renal Tumour* which almost filled the whole abdominal cavity and was hard and craggy on palpation. There were no urinary symptoms, but there were secondary deposits in the liver, in the glands on the left side of the neck, and in both groins. A large opaque deposit could be seen in a radiogram, involving the right side of the os innominatum. There were no signs of secondary deposits in the chest, nor any sign of varicocele or œdema of the left leg, in spite of the fact that the tumour was of such a large size. Mr. Wakeley said that glandular deposits in renal tumours must be looked upon as very uncommon.

Dr. BERNARD MYERS showed a case of *Milroy's Disease* in a woman, aged 47, who had suffered from swelling of the right leg from infancy. All available methods of treatment failed to cure the condition, and at present the patient was taking pituitary whole gland gr. ½ twice daily.

Dr. TERENCE EAST showed a case of *Coarctation of the Aorta* in a man, aged 55. There were some large veins over the upper part of the sternum in the left supraspinous fossa. There were large palpable arteries with a systolic thrill and intense murmur. The pulses were unequal; the blood pressure, left arm, 195/145; right arm, 135/100. The heart was enlarged with extensive apex-beat, which was rather weak, the first sound being reduplicated, and the aortic second loud. The electrocardiogram was of the left ventricular type, with abnormality in the T waves in the first and third leads, associated probably with the changes due to the high blood pressure. Wassermann reaction, negative. Urine, normal.

Dr. East also showed a specimen of coarctation of the aorta removed from a woman, aged 46, who

died from fracture of the skull soon after admission to hospital. Her clinical history was unknown. The specimen showed :—

Coarctation of aorta just below point of entry of closed ductus arteriosus; calcification at this spot. Large anomalous vessel arising just above coarctation running to right, between the spine and the œsophagus, to supply the place of the innominate, and to form the right subclavian. Heart: slight hypertrophy in left ventricle. Aortic valves normal. Slight aortic atheroma. Vessels of both thyroid axes were large; also long thoracic and posterior scapular arteries; internal mammary arteries very large.

Mr. HAROLD EDWARDS showed a case of *Hæmolymphangioma of the Tongue* in a woman, aged 29. When two years old she had partial glossectomy for hæmolymphangioma of the tongue. The whole tongue and the floor of the mouth are now covered with growth which is at present stationary and has remained unchanged for several years.

Mr. Edwards also showed a case of *Carcinoma of the Tongue* 19 years after Whitehead's operation. A man, now aged 78, in 1913 had the right half of tongue removed for carcinoma, and 14 days later the glands on the right side of the neck removed. The pathological report on the tongue growth was squamous-celled carcinoma. No microscopical evidence of secondaries in excised lymphatic glands was found. Four months after the second operation a recurrent mass was removed from neck. The function of the remaining portion of the tongue was now excellent, said Mr. Edwards, and there were no signs of recurrence.

Dr. J. D. ROLLESTON showed a case of *Striæ Atrophicæ following Rheumatic Fever* in a man, aged 21, admitted to hospital on Sept. 26th, 1931, suffering from diphtheria, but found after admission to have rheumatic fever which had become complicated by endocarditis, albuminuria, and pleuropneumonia.

Temperature pursued an irregular course, oscillating between normal and 104·6° F. till Nov. 17th, the fifty-eighth day of disease, when it finally became normal. The striæ, which were situated on the back, arms, buttocks, and thighs, were first seen on Oct. 30th, the thirty-seventh day of disease. On the back they extended from the level of the lower angle of the scapula to that of the lumbar vertebræ, were transverse in direction, pinkish or livid red in colour, depressed below the level of the normal skin, and measured from 1 to 2½ in. long and about ¼ in. broad. On the left side they extended lower down than on the right, and passed round to the ventral aspect. On the buttocks and posterior part of the thighs their arrangement was longitudinal. A few faint striæ were seen on posterior aspects of both upper arms.

Dr. H. S. LE MARQUAND showed a case of *Suprarenal Virilism* (pubertas præcox) in a male child, aged 2 years. Pubic hair was first noticed at about the age of 14 months; since then the development of the sexual organs and general bodily growth had proceeded at an abnormally rapid rate. During the last few months his sexual proclivities had caused trouble. His parents stated that he could not be left alone with an adult woman because of the obvious sexual advances which he made; he was not attracted by small girls. These statements had been corroborated by observation in hospital.

On examination, a strong active red-headed boy, who appears to be between 6 and 7 years old. Height 3 ft. 5½ in., weight 49 lb. (average 2 ft. 11½ in. and 30½ lb.). Muscular development very pronounced, approaching the infant Hercules type. Mental development about that of a child of 2; he is exceedingly mischievous. Development of hair: pubic hair well-marked, with a horizontal upper limit; hair prominent on forearms and legs below the knee, with a lesser distribution on the back and thighs; no hair in the axillæ. Genital organs: the penis, scrotum, and testicles are well-developed, almost the size of those of an adult.

ASSOCIATION OF CLINICAL PATHOLOGISTS.

THE fifth annual meeting of this association was held in the Bland-Sutton Institute of Pathology, Middlesex Hospital, on Jan. 30th, Dr. L. E. H. WHITBY being in the chair.

ASCHHEIM-ZONDEK TEST.

Dr. A. F. WRIGHT spoke of the value of this reaction in the diagnosis or exclusion of pregnancy long before this was possible by any other means; he produced figures based on his own observations and those of others showing that once pregnancy was established the reaction would, in over 97 per cent. cases, give a definite and correct answer to the question "is this subject pregnant?" His own work suggested the possibility of error in ectopic pregnancies; absent or weak reaction in a woman known to be pregnant might serve as a warning of threatened abortion. He described the method of obtaining a quick reaction by precipitating the active principle from the urine with alcohol and injecting it intravenously into a rabbit; this he had found satisfactory.—Dr. A. G. SHERA asked what was the value of the test in the diagnosis of chorion-epithelioma, whether the reaction was positive as in other types of malignant disease.—Dr. S. C. DYKE said he had found the test positive in chorion-epithelioma and pointed out that the persistence of a positive reaction in a woman who had recently been confined or had aborted was strong evidence of the presence of growth of this type.—Dr. E. WORDLEY stated that in the absence of pregnancy he had found the reaction negative in the subjects of malignant disease, either male or female.—Dr. WRIGHT, in reply, spoke of the necessity of cutting sections of the ovaries for microscopical examination in all doubtful cases.

BACTERIOLOGY OF NORMAL TEETH.

Dr. J. B. DAVEY remarked on the present tendency to attribute many rheumatic and other infections to apical infection of teeth, the streptococcus being the organism usually implicated; in support of this is adduced the fact that streptococci are practically always to be isolated from the infected apices of such teeth. He had himself isolated many such strains and had found that for the most part they were non-hæmolytic and of the type usually found in the mouth, though some might give slight hæmolysis of the *a* type. He described the result of examining 13 healthy teeth and 8 which would have been passed as healthy on any except the most rigorous tests; all had been removed for cosmetic or other reasons and not on account of caries or infection. From the tips of 11 of the 13 healthy teeth, and from 7 of the 8 teeth not above suspicion he had isolated streptococci. The root canal of the healthy tooth also gave a growth of streptococci.—Dr. F. B. SMITH pointed out that similar findings had resulted from an investigation made some years ago by the late Prof. E. E. Glynn.

BACTERIOPHAGE IN B. COLI INFECTION.

Dr. WHITBY spoke of the use of bacteriophage in the treatment of *B. coli* infection of the urinary tract. In acute cases the phage did not appear in the urine until it became alkaline, but it would often do so on the day following alkalisation, with rapid disappearance of the infection. In chronic cases the phage failed to appear in the urine at all. He pointed out that organisms which survived the initial attack of the

phage were resistant and able to propagate a resistant strain; it was therefore necessary to give a large dose of a high-titre strain. Many of the phages on the market were of low titre and should not be used until the titre had been raised by subculture with susceptible organisms; he regarded crude sewage as the best source of potent phage. Cultivation and increase of potency of the phage was better carried out at room than incubator temperature. The phage could be administered by mouth, hypodermically or locally; hypodermically he gave 2 c.cm. three times a day for three days.—Dr. DYKE adduced evidence in favour of the belief that so-called acute pyelitis was always associated with small abscesses in the cortex of the kidney; if this were so local instillation of the phage into the urinary passages was not a rational method of its employment.—Dr. CUTHBERT DUKES said he had never been able to find evidence that lesions in the intestines would permit of the passage of *B. coli* to the urinary system.—Dr. D. EMBLETON stated that bacilluria was frequently associated with chronic constipation, particularly in habitual users of cascara; in such cases when the bacilluria had disappeared it could be brought back again by a dose of cascara.—Dr. WHITBY, in replying, agreed that local instillation of the phage had little to commend it; he favoured the hypodermic route.

CONVALESCENT HUMAN SERUM.

Dr. A. G. SIGNY described his experiences in the production of immunity with convalescent human serum, with particular reference to measles. He recommended collection of blood from 10 to 14 days after defervescence, the serum being pipetted off the following day. This was tested by means of the Wassermann reaction and for sterility; all sera were then pooled and put up in ampoules with 0·5 per cent. carbolic. Such serum would maintain its potency if kept in the ice-chest for at least a year. Injection of serum within five days of exposure would prevent the disease appearing; up to the ninth day from exposure it would result in an abortive attack; thereafter it was ineffective. He drew attention to the advantages accruing from an abortive attack in the development of active immunity. Such attacks were usually so mild as not to necessitate confinement to bed. He described a method of producing an active immunity without an actual attack of the disease by injecting first a large dose of immune serum, followed 24 hours later by 1 c.cm. of blood from a case in the infective stage. He recommended a dose of 7 c.cm. for children up to 3 years of age; 10 c.cm. for older children. He drew attention to the value of convalescent serum in poliomyelitis, adding that the opportunity for its use seldom arose in this country.—Dr. J. G. GREENFIELD described the methods in use in the early treatment of poliomyelitis in Australia. Polymorph cells, he said, appear in the cerebro-spinal fluid in the early stages of the infection and before paralytic symptoms appear; they become progressively fewer as the disease declares itself. Australian experience had shown the dosage of serum was in inverse proportion to the number of these cells in the cerebro-spinal fluid.

UREA CLEARANCE.

Dr. E. WORDLEY described the Van Slyke urea clearance test of renal efficiency. This test he pointed out was regarded by its originators as an indication of the rate of clearance per unit of time of urea from the blood. It was calculated from the formula $\frac{U}{B\sqrt{V}}$ where U represents the urea in the urine, B that in the blood, and V the volume of urine secreted per minute over one hour. Where the rate of excretion of urine was high the formula $\frac{U \times V}{B}$ must be used. For the first formula a normal clearance figure was anything over 54, for the second, anything over 75. The speaker stated that he had determined the clearance figure in a number of cases and had found it to give results accurately according with the clinical condition and with the results of other tests of renal function.

Dr. GREENFIELD gave an address on the microscopical differentiation of cerebral tumours, showing specimens and slides illustrating many types of cerebral tumour. He drew attention to the clinical and histological differences between those of gliomatous and ependymal origin and described a classification considerably simpler than that of Cushing, but which appeared to cover all types met with. A relatively benign and slow-growing tumour was the oligo-dendroglioma.—Prof. J. MCINTOSH expressed the hope that simplification might be carried even further.

HARVEIAN SOCIETY.

A MEETING of this society on Feb. 11th, with Mr. C. P. G. WAKELEY, the President, in the chair, was devoted to a discussion on

Endoscopic Methods.

Mr. V. E. NEGUS said that the usual view was that the bronchoscope was useful only for the removal of foreign bodies, but this was no longer the main field in which it was employed at King's College Hospital. Since 1924 the total number of patients examined by the bronchoscope for foreign body had been 21, while in the same period no less than 365 bronchoscopic examinations had been made, on a total of 95 patients, for other conditions. Mr. Negus found that the ordinary bronchoscope with distal illumination served all his purposes, and he did not agree with the view of some observers that the lumen was too small. The small diameter of the tube made it mobile and easy to insert; in cases of carcinoma it might be difficult to see the distal parts of the growth, but for these cases he employed a modification of the instrument in which the light was thrown ahead and not shielded. In laryngoscopy he used a similar type of light. In Chevalier Jackson's clinic two or three skilled assistants were required at a bronchoscopic examination, and it had been suggested that bronchoscopy could never become popular in England because the regular changes in the staff of resident hospital officers would make the training of such skilled assistants impracticable. By the aid of the Haslinger head-rest, however, the surgeon could now perform the examination single-handed, and without the services of an anæsthetist. Bronchoscopy was therefore the more valuable in cases where a general anæsthetic was contra-indicated. Where a foreign body was lodged in the larynx the patient should be examined lying on an inclined plane with his feet higher than his head; in this position there was no danger that the foreign body would fall into the trachea or bronchi when it was dislodged. In children indirect examination was often difficult, and laryngoscopy was to be preferred, for example, in examining a child for papilloma of the larynx. Laryngeal growths of all kinds could be studied by this method, and if necessary a portion

could be removed for section. Direct examination of the trachea was useful where a foreign body was present, and, recently, had also been used in diphtheria; sloughs could be removed by means of the bronchoscope, and tracheotomy or intubation might thus be avoided.

The bronchoscope was usually introduced through the laryngoscope, which was then withdrawn; the withdrawal of the laryngoscope was the only part of the examination which was likely to cause discomfort to the patient. Cough might be prevented by the application of cocaine, but it was sometimes undesirable to abolish cough. Where a foreign body had been inhaled the bronchoscope had proved invaluable in saving life, and the method should be successful in almost every case. Among the 21 cases already mentioned foreign bodies had been successfully removed in 20; the exception being an open safety-pin whose point had entered the pericardium.

The inhalation of the foreign body might cause an abscess of the lung. In one case an abscess had formed owing to the presence of a complete vertebra of a rabbit; this was removed and nine more bronchoscopic aspirations had to be performed to drain the abscess, but the patient made a good recovery. In eight other cases in the series lung abscess was secondary to the presence of a foreign body. Abscess might also follow operations, especially those on the nose and throat. If bronchoscopy were employed earlier in such cases the proportion of cures would be higher. In one case, where 25 teeth had been extracted, a lung abscess had cleared up after the removal of a piece of infected clot which was plugging a bronchus, and in another case, where 18 teeth had been removed, an abscess cleared up after two bronchoscopic aspirations. In neither case had a tooth been inhaled. It was important that bronchoscopy should not be delayed in such cases simply because radiography showed no foreign body. Of six cases of post-operative lung abscess five were cured, one two years after the operation and one a month after; one of the six was improved considerably, and later was cured by external drainage. Lung abscess might also follow pneumonia or quinsy, or might arise without apparent cause. Repeated bronchoscopic aspiration sometimes cured the patient and nearly always improved his condition so that he was fitter to stand the operation for external drainage.

In order to perform aspiration a fine aspirating tube with a gum elastic end was passed down the bronchoscope. As pus oozed from an abscess cavity granulations formed in the bronchi draining it; the bronchi normally contracted on expiration, and if they were partly occluded by granulations they were closed completely, so that postural coughing was quite ineffective in draining the abscess. With the bronchoscope in position, holding open the partially stenosed walls of the bronchi, the patient was able to cough the pus out of the abscess cavity so that it could be aspirated; the granulations could then be painted with silver nitrate.

In bronchiectasis the results of aspiration were not so good, but the patient's condition could often be improved. Direct examination made a definite diagnosis possible where new growth was suspected; in some cases it might demonstrate that only asthma or bronchitis was present, and in a few cases the new growth might be an innocent fibroma which could be removed.

THE ŒSOPHAGOSCOPE.

Mr. H. S. SOUTTAR said that he had had considerable experience of the treatment of carcinoma of the œsophagus and, while no one could do much for the patient, it was usually possible to make him able to swallow. In order that the operator might perform the necessary manipulations an instrument with a wider lumen than Chevalier Jackson's was required, and like Mr. Negus, he used a light which threw the beam ahead. The œsophagoscope which he employed was 10, 14, or 18 inches in length, depending on the site of the growth, and the lumen was sufficiently wide to allow the tube which was to be passed through the growth to be introduced down the œsophagoscope He found it best to introduce the instrument at the angle of the mouth, with the position of the head in the normal relation to the body; as the instrument slid into the concavity of the thorax the head had to be lifted forwards and, as it passed lower down, the thorax, but not the neck, required to be straightened out. When a point was reached at which the operator saw that the œsophagus was not opening and closing with respiration he knew that the growth was under observation. Usually the tumour began to bleed, and an aspirating tube and a stream of hot water were necessary to keep the field of operation clear. Bougies with a detachable soft end were passed through the stricture, and then the lumen was further stretched by passing dilators down, threaded over the bougie. The tube to be inserted was made of closely coiled wire, about 5 inches long with a shoulder at the top and a spiral twist occupying 2 or 3 inches in the middle of its length; this spiral twist helped to keep it in position. Mr. Souttar had treated one patient who had kept the tube in position for 18 months, but the disease usually proved fatal long before that time. He had lately been treating these cases with radon seeds, placing them accurately and symmetrically in position by means of a plunger which delivered them when a button was pressed. He had been fairly successful in arresting the rate of growth temporarily, and in causing temporary regression in some cases by the use of this method. He had recently designed a new œsophagoscope by which he hoped to deliver radon seeds into the growth with still greater accuracy.

DISCUSSION.

Mr. C. HAMBLEN THOMAS described two cases in which endoscopy had proved valuable. In the first, radiography had shown a brass paper clip in the thorax, but it was doubtful whether it was lodged in the lung or the mediastinum; bronchoscopy solved the doubt and the foreign body was removed. In the second case bronchoscopy established a diagnosis of bronchiectatic abscess.

Prof. J. G. WRIGHT said that impaction of a foreign body in the œsophagus occurred frequently in puppies. The usual method of treatment was œsophagotomy with removal of the foreign body. In one case where the œsophagoscope had been employed the piece of bone causing obstruction was too large to be removed through the lumen of the tube. The dog was deeply narcotised with morphine and the pressure of the œsophagoscope on the larynx had been sufficient to cause death.

Mr. A. DICKSON WRIGHT said that he had found that in aspiration of lung abscess the amount of pus removed was small. Chevalier Jackson attributed the improvement following aspiration to the fact that the pus was so viscid that the patient would never have been able to cough it up. He thought it wise to anticipate the rupture of an abscess into a bronchus by aspirating the pus even from a closed abscess. If the case was allowed to take its course the patient was in danger of drowning in pus when the abscess ruptured. Few London hospitals had the proper equipment for the employment of endoscopic methods

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this society on Feb. 12th, with Dr. H. H. MILLS, the President, in the chair, was devoted to a discussion on

Public Health in its Relation to the General Practitioner.

Dr. J. B. HOWELL sketched the development of the public health movement towards the very wide ramifications of municipal health enterprise to-day. The foundation of this service was, he said, the general practitioner, and its success depended upon his capacity, competence, and clinical skill, and his training in preventive as well as in curative medicine. The practitioner in his turn depended upon the provision of the necessary facilities, and his art must keep pace with advancing science. The public medical services, so far from excluding him, gave him wide scope, being largely staffed by part-time workers. The whole of the National Health Insurance scheme was in the hands of the private practitioner; his duties under the State—particularly those of notification and certification—were wide and likely to increase still further.

Dr. Howell enumerated the facilities given to the private doctor by public medicine and the ways in which the practitioner could help the health officer. He expressed a desire for regular meetings between the practitioners and the public medical officers in each centre of population.

Dr. J. FENTON stated that at the time of the accession to the throne of Queen Victoria there had been no public health service. He outlined its history from Edwin Chadwick's work through the Public Health Acts of 1848 and 1875 until the beginning of the present century, when this country had been far in advance of all others in public health work. This work, however, had included no treatment except in fever hospitals, the primary business of which had been isolation. A desire had then arisen, he said, that public authorities should turn their attention to individual suffering; the establishment of bodies, such as the Kensington Health Society, which set up their own health centres had stimulated municipal enterprise, and infant welfare centres had multiplied. In 1914 the Government had undertaken to pay half the expenses of these clinics, which now numbered 2800. They were mainly staffed by part-time officers; moreover, before their advent the general practitioner had hardly concerned himself at all with the work which they did, for the poorest classes had not consulted doctors about the upbringing of their children. Similarly, the school medical service treated conditions in children which previously had never come to the general practitioner. School medical officers enforced the requirement that patients should first be referred to their own family doctors, but they rarely went and were rarely wanted. The tuberculosis service provided a special example of how local authorities could develop preventive medicine without encroaching on private practice. The tuberculosis clinic provided expert diagnosis, supervision of contacts, and selection of patients for sanatoriums, but did not undertake treatment; it referred to the private practitioner patients who could be treated at home. Before its establishment the poorer patients had been treated either at out-patient departments or under contract, and when they had become too ill to walk about they had entered poor-law hospitals or been treated at home by poor-law medical officers. The total expenditure on public health and social services had risen from £20,000,000 in 1891 to £348,000,000 at the present day.

THE PROFESSION UNDER A STATE SERVICE.

Dr. Fenton exhorted his audience to look at the future. A State medical service was inevitable and would come more quickly than they anticipated. The work of the doctors of the country was already very largely under the direct control of the State or the local authorities; he pointed out that hardly a member of the meeting was not employed in public medicine of some kind or another. The public hospitals in London outnumbered the voluntary hospitals in their accommodation by nine to one, and the almoners of the latter were striving day by day to get subscriptions from local authorities for special services. This tendency would be increased as the Act of 1929 was more fully operated. Moreover, he said, conditions of service under the State were better than those in private practice, just as the teacher in a State school was better paid and had better holidays than the teacher in a private school. The growth of State education had not decreased the demand for private education, and private practitioners would always be required. Practitioners who had little experience of State control feared that they would lose their independence under it; had the average general practitioner, he asked the society, more independence than their President or himself? The general practitioner worked in a very small area and had little time for research and little recreation. A public medical officer who acted with decorum and carried out his duties strictly had a measure of independence in his work which would surprise most general practitioners. The more that the profession did to help the coming of a State medical service, the more it would do for itself. State medicine had done much for the country; it had done more for the medical practitioner.

Dr. RONALD CARTER described his treatment of zymotic enteritis and other children's complaints at a municipal hospital. He said that "first-aid treatment" was most necessary and did not interfere with the general practitioner.

Dr. REMINGTON HOBBS asked for a closer liaison between the private practitioner, the hospital, and those responsible for postnatal treatment; this coöperation would reduce maternal mortality.

DISADVANTAGES OF STATE-CONTROLLED MEDICINE.

Sir ALLAN POWELL said that at the time of the Act of 1875 public health had been entirely a matter of sanitation; the health authorities of the country had known all there was to know about "pipes." They had then undertaken isolation, and then the treatment of the destitute, and latterly the public conscience had come to demand that the community should provide these lavish therapeutic services for all its members. He doubted whether the tendency was a good one, and pointed out the danger of teaching everybody in the country that he could have everything done for him for nothing out of the rates and taxes. He instanced some of the abuses of unemployment insurance. The greatness of the country had grown up on individual initiative, and it might not be good that all medical practitioners should be paid servants of the State with fixed salaries and holidays. The question was a most pressing one.

Dr. GERALD SLOT complained that many rheumatic heart children were certified as unfit for school for very

slender reasons, and that a certificate often meant a licence to play in the streets. When a panel patient was really ill the burden of his care fell on the hospital, and the National Insurance scheme ought to recognise that work in some quite definite way. A serious illness in a middle-class family meant a financial crisis; the voluntary hospital had instituted small paying wards, but this accommodation was far too scanty. Municipal nursing homes, like those of Scandinavia, were an inevitable step. The voluntary hospital, he said, had ceased to exist as such, and patients often complained that they could not afford to be treated in it. The only voluntary thing left was the consulting staff. If voluntary hospitals were to continue, said the speaker, let them be run on a sound financial basis, and not have to descend to the level of sending out their students dressed as nigger minstrels with barrel-organs to collect funds.

Dr. HOWARD STRATFORD said that the point of real difficulty in the relationship between public and private medical men lay in the clinics. It was felt by general practitioners, and also by the British Medical Association, that the basis of a national medical scheme should be the provision of the services of a general practitioner or family doctor to every individual. In emergency the family doctor and no one else was called in. Every clinic should display a large notice: "Have you a family doctor? If not get one!"

The PRESIDENT agreed that public and private doctors should hold periodical conferences. Private practitioners, he said, either singly or in combination, should start clinics for periodical examination—especially of expectant mothers—for the "better classes." These centres might reduce the incidence of rickets in well-to-do children to the low level achieved among the poor by the present welfare clinic.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

A MEETING of this society was held in Manchester on Jan. 22nd, with Dr. F. H. LACEY, the President, in the chair.

PROLAPSE WITH STRANGULATION OF THE URETHRA.

Prof. LEITH MURRAY (Liverpool), after a reference to the infrequency of a clear definition of the condition in text-books, described four cases of prolapse with strangulation of the urethra. All the patients were elderly multiparæ, their ages ranging from 67 to 84, and all had similar symptoms and physical signs—namely, considerable local pain, marked urinary frequency, especially by day, difficulty in walking, and a blood-stained discharge. He thought that strangulation of the protruding mass must occur at some stage of the process, owing to the marked livid colour, and that, although infection was present, this must be secondary. There was no tendency to urinary retention, so there appeared to be no urgency in the treatment, which consisted in the application of adrenalin and chloretone ointment for a day or two, replacement of the urethra by finger pressure (under anæsthesia in two cases), and the use of a self-containing catheter for a few days. There was no recurrence in three of the cases over a period of one to four years, but in a fragile old lady of 84 there was a slight recurrence for ten days after removal of the catheter. This was controlled by daily observation and reposition, and the patient was reported to have been free from symptoms during the last seven months.

ASCHHEIM-ZONDEK TEST IN ECTOPIC PREGNANCY.

Mr. W. W. KING (Sheffield) described a case illustrating the value of the Aschheim-Zondek test in ectopic pregnancy in the presence of hydatidiform degeneration of the chorion. After referring to the rarity of cases in which the test could be of definite clinical value in ectopic pregnancy, he paid tribute to the support it gave in confirming the necessity for immediate operation in a difficult case.

The patient had gone 17 days over her time before the so-called period commenced, but this delay as well as certain indefinite symptoms such as pains in abdomen and left shoulder were ascribed to "chills," "over-eating," and "rheumatism" respectively. The only physical sign was the doubtful presence of free fluid, and even under anæsthesia no suspicious appendage swelling was palpable; but on arrival of a positive report on the urine, operation was insisted upon. Laparotomy showed free blood, which was mostly clotted, in the peritoneal cavity and a tubal mole which revealed naked-eye and microscopical evidence of early vesicular degeneration. The presence of this degeneration would account for the positive reaction in spite of the fact that the fœtus was apparently dead.

Mr. King referred to the greater relative frequency of vesicular degeneration of the chorion in tubal than in uterine pregnancies.

The PRESIDENT said he had found needling the pouch of Douglas helpful in the diagnosis of doubtful cases of tubal gestation.

Dr. M. M. DATNOW (Liverpool) said he had carried out the test in three cases of tubal pregnancy, with a correct result in each case, and therefore considered it of value in arriving at a diagnosis. He believed that the reaction was never positive more than 48 hours after delivery or abortion except in cases of hydatidiform mole or where chorion-epithelioma had developed.

TWISTED HYDROSALPINX.

Mr. J. E. STACEY (Sheffield) showed a specimen of a twisted hydrosalpinx removed from a nulliparous woman aged 29, who had been married for four years and had complained of abdominal pain (with premenstrual exacerbations) for three years. She sought medical advice on account of sterility alone.

Bimanual examination revealed a retroverted uterus with a mass of enlarged matted appendages palpable in the pouch of Douglas, and as Rubin's test was negative a laparotomy was performed. It was found that the right tube had been converted into a hydrosalpinx 5 in. long which had undergone one complete twist and contained blood-stained serous fluid. In the process of torsion the broad ligament had been torn and there was a large hiatus in it, thus preventing the ovary being involved, but this organ was cystic and bound down by adhesions. Right salpingectomy was performed, and as the left tube was thickened and the lumen occluded at the fimbrial end, left salpingostomy was carried out, and an infected retrocæcal appendix was also removed.

Mr. Stacey discussed whether salpingostomy was preferable to a more radical operation in patients complaining of pain and sterility, and mentioned one case in which pregnancy had followed bilateral salpingostomy.

DEGENERATING FIBROID.

Dr. C. P. BRENTNALL showed a specimen of a fibroid with red and cystic degeneration, removed from a primigravida aged 27, who had complained of continuous pain and tenderness apparently due to the tumour, and present for four months. The fibroid, which was extensively adherent to omentum and colon, was almost uniformly degenerate, and showed areas of cystic degeneration containing a fluid which, after fixation, somewhat resembled chocolate in appearance. Dr. Brentnall referred to the opinion

frequently expressed that red degeneration of a fibroid in pregnancy affords no indication for operation. He had collected two series of hospital cases and found that the eleven patients who had enucleation performed, all went on to full term, while of 31 instances in which no operation was performed, one mother died of peritonitis following hysterectomy two months after delivery, and there were four abortions, one premature labour with death of the fœtus, one macerated child, and four neonatal deaths. In view of these results, of the danger of changes such as those in the specimen described, and also of the possibility of the development of sarcomatous metaplasia or dense adhesions round the tumour, Dr. Brentnall advocated early surgical treatment when red degeneration was diagnosed in pregnancy.

Prof. LEITH MURRAY defined the late stage of red degeneration as chronic necrobiosis, or grey degeneration, and considered that all cases should be allowed to settle down under morphia unless, in spite of this treatment, there was an increase in the degree of toxæmia.

CARCINOMA OF PERINEUM.

Dr. K. V. BAILEY showed a specimen of carcinoma of the perineum removed from a patient aged 36, who was single, and had complained of soreness in the perineal region for two months. Examination revealed a deep excavating ulcer of the perineum extending up to, but not actually invading the external sphincter ani muscle, with extensive glandular involvement in both groins. As a result of extensive treatment comprising three applications of radium, colostomy and excision of the left iliac and both sets of inguinal glands, and finally of excision of the ulcer, the patient had been rendered comfortable. The perineum readily healed by granulation and the glandular areas were being treated with X rays.

EDINBURGH OBSTETRICAL SOCIETY.

AT a meeting of this society on Jan. 13th, with Dr. JAMES YOUNG, the President, in the chair, three papers were read bearing on the

Toxæmias of Pregnancy.

Prof. J. M. MUNRO KERR (Glasgow) began by pointing out that little material benefit had been derived from the enormous amount of research on the toxæmias of pregnancy during the past thirty years. As Whitridge Williams had said, "it is evident that the cause of eclampsia has not been discovered, and that the peace of mind of all concerned would have been increased had many of the so-called contributors never written, or at least had withheld their contribution long enough to submit them to ordinary self-criticism."

The ætiology of the toxæmias must be looked for not when grave symptoms were present, but far back in the early days of pregnancy when, following the embedding of the zygote, great and insidious forces disturbed the normal physiological processes of the maternal organism. In the first place, there was great activity of all the endocrine glands during pregnancy, especially the anterior lobe of the pituitary body and the thyroid. Secondly, there was considerable destruction in the uterine mucosa at the site where the zygote embedded, and later as the placenta grew and developed, the area affected assumed large dimensions. This destruction in the early weeks was very aggressive and the deposition of tissue by the chorionic villi must result in the discharge of products of protein autolysis in the maternal blood stream. In all probability, cases of emesis gravidarum and hyperemesis were due to disturbed metabolism resulting therefrom. Thirdly, it had been pointed out by Snorf and Veit that portions of villi were transported by the circulation. The organism may therefore have an additional strain upon it in dealing with such foreign products. Fourthly, metabolism had distinctly altered during the first three months of pregnancy—especially protein metabolism—and although in the human subject there was seldom a definite negative phase such as was seen in the lower animals, something approaching that condition did occur. It was noteworthy that the sickness of pregnancy, the disturbances of the negative phase, and the full development of the placenta occurred about the same time.

These disturbances of the early months were succeeded by a period of relative stability lasting eight to ten weeks during which the grosser manifestations of toxæmia seldom developed, and this was followed by the last phase when outbreaks of toxæmia in one form or another were commonest. The reason for this was probably that the placenta from the sixth month onwards was a degenerating organ and the ectoderm covering the villi had almost disappeared and was more or less degenerating. It seemed inconceivable that an organ in this condition could have any activity as an endocrine organ; thus the placenta was unlikely to produce special hormone at this time, but it certainly acted as a store-house for such a substance. Prof. Munro Kerr thought it probable that an outbreak of toxæmia was due to products of protein autolysis; the organism already overburdened by toxins was unable to stand further strain. The pregnant woman had always a struggle to combat attacking forces—endocrine activity, digestion of the endometrium, and the resulting disturbing metabolism. If she did not succeed in the fight the toxins produced further infection, more especially in the liver, with the result that metabolic processes were still further affected. Renal disturbances were secondary except where any previous disturbance existed. Faulty elimination followed, and a vicious circle was created which culminated in gross toxæmia in one or other of its recognised forms.

Prof. R. W. JOHNSTONE read a paper on a Fatal Case of presumably Acute Pregnancy Toxæmia which occurred at the seventeenth week of pregnancy and which proved fatal despite drastic operative interference.—Dr. JAMES DAVIDSON described a Fatal Case of Eclampsia associated with extensive cerebral hæmorrhage at the thirty-sixth week of pregnancy.

A CORRECTION.—Dr. A. H. Douthwaite writes in reference to his remarks made at the Medical Society of London last week (p. 350). "I remarked that it was the *hyper*sthenic individual who so often suffered from gall-stones and angina pectoris, and that possibly their coincidence was as much due to the tendency of each condition to arise in the robust type, as to any ætiological connexion between gall-bladder disease and the development of coronary atheroma."

POLITICAL SPEECHES AT MENTAL HOSPITALS.—A request by a candidate in the Irish Free State General Election for permission to address the attendants at Portrane has been refused by the Grangegorman Mental Hospital Committee on the grounds that "the holding of a meeting within the grounds of the hospital would have an unfavourable effect on the patients." Similar requests in the past have always been refused.

REVIEWS AND NOTICES OF BOOKS

Diseases of the Thyroid Gland,

With Special Reference to Thyrotoxicosis. By CECIL A. JOLL, M.S., B.Sc. Lond., F.R.C.S. Eng., Senior Surgeon to the Royal Free Hospital and the Miller General Hospital; Surgeon to the Cancer Hospital. London: William Heinemann (Medical Books), Ltd. 1932. Pp. 682. £3 3*s*.

IT is 30 years since any book dealing with the diseases of the thyroid gland and their treatment as a whole has been published in Great Britain. Mr. Joll's work has been awaited with no little interest. It fulfils the considerable expectations it has aroused, and is, indeed, a masterly presentation of the subject. The introductory chapters on anatomy and physiology are excellent summaries of an exceedingly wide field of work, and they are followed by a chapter on the parathyroids which is the only disappointing section of the book. We can only presume that the notes for it were compiled some years ago, for it contains no reference at all to hyperparathyroidism and the related cystic changes in bone, and the more recent work on calcium metabolism receives but very brief mention. Inflammatory conditions of the thyroid are well described, and the sections on endemic and sporadic simple goitre are admirable accounts, and well illustrated, of the present state of knowledge of this important subject. Relatively small space is allocated to the hypothyroid states, as is perhaps natural in a book mainly surgical in conception and scope; we could find no reference to those difficult cases of long-standing primary thyrotoxicosis in which symptoms of hypothyroidism develop at the same time. The sections of the book devoted to thyrotoxicosis are, however, excellent on the whole. Mr. Joll stresses the importance of undertaking surgical treatment sufficiently early in the disease to anticipate the visceral degeneration which inevitably occurs later, and which as well as affecting the operative risks must of necessity leave the patient with some degree of permanent disability. When considering operative results he says: "In certain countries medical opinion has for many years been so violently opposed to the operative treatment of exophthalmic goitre, doubtless as a consequence of the unsatisfactory immediate and remote results obtained by surgical measures in the first decade of the century, that patients are referred to the surgeon only when all other methods of treatment have failed and the various visceral lesions characteristic of the later stages of the disease are well advanced."

Mr. Joll's own mortality in 795 cases of thyrotoxicosis is 2·8 per cent., and he is able to show 90 per cent. of "cures" with a standard of cure which entails ability to pursue normal avocations, and, among women, the capacity to bear children without relapses. It redounds greatly to the credit of the pioneers in the surgery of the thyroid in this and other countries that what was not very long ago a dangerous operation has become in the hands of those experienced in this branch of surgery one of the safest of the major surgical operations.

Mr. Joll has undertaken no small task in dealing single-handed with the many manifestations of thyroid disease. The limitations inherent in single authorship are evident in the sections on hypothyroidism and on the cardiovascular system in thyrotoxicosis, but on the whole he has accomplished his difficult task admirably. The style is most readable, the evidence is judicially considered, and detail is never allowed to obscure principles.

The production of the book could hardly be bettered. Each chapter concludes with a list of carefully selected references and the index is worthy of the reputation of Mr. A. L. Clarke. The book should bring credit alike to author and publisher, and provides a valuable addition to British surgical literature.

A Guide to Human Parasitology

For Medical Practitioners. By D. B. BLACKLOCK, M.D. Edin., D.P.H. Lond., D.T.M. Liverp., Professor of Parasitology, University of Liverpool; and T. SOUTHWELL, D.Sc., Ph.D., A.R.C.Sc., F.R.S. Edin., Lecturer in Helminthology, School of Tropical Medicine, Liverpool. London: H. K. Lewis and Co., Ltd. 1931. Pp. 271. 15*s*.

THIS work is devoted to the animal parasites causing disease in man. Its modest title is happily chosen and indicates clearly that the work makes no claims to be encyclopædic in character. It is intended rather to set out for the benefit of the student of tropical diseases and of the qualified practitioner resident abroad the methods and essential steps by which a rapid and certain diagnosis may be reached. This question of diagnosis is kept to the fore throughout the book, and was obviously the most important consideration in the minds of the authors. They have provided clear, practical, and concise instructions in procedure; indeed, the only serious criticism which may be levelled at the work is that it tends to err on the side of brevity. Many points which may not be absolutely necessary for reaching a diagnosis, but are nevertheless essential to a true understanding of the parasite, its life-history and its effects on man, have been omitted. This is especially noticeable in the section on the protozoa, which only occupies some 50 pages as against 134 pages on helminths. This allocation of space seems disproportionately small, since under the heading of protozoa such important conditions are dealt with as amœbiasis, sleeping sickness, and American trypanosomiasis, leishmaniasis, both visceral and dermal, and malaria.

The authors lead up to the description of the parasites by giving, first, certain methods of procuring and examining suspected material, including the use of the microscope. A chapter on the spirochætacea follows, in which, it is interesting to note, the names spironema, treponema, and leptospira have been discarded, at least for the present, in favour of the first generic name spirochæta. In the mention of the individual parasites the same sequence has been used in each case: this is a great help to the reader in avoiding confusion. The generic and specific names, with the more important synonyms where any difficulty might arise, are accompanied by a paragraph giving the geographical distribution, and this is followed by a succinct account of the habitat of the parasite in the body of the host. The morphological characters are then detailed, due emphasis being placed on the more important or diagnostic features at all stages. The life-cycle is set out without a multiplicity of detail or recapitulation of divergent theories, and the pathogenicity of each organism is discussed. Finally, under the heading of diagnosis, the routine procedure for establishing the identity of any parasite is described.

At the end of the volume a number of diagrams

illustrate the life-histories of various parasitic worms; a series of tables summarise various aspects of parasitology, such as, for example, the parasites of fish, meat, and edible crustacea, and the diseases spread by the agency of arthropods. The illustrations throughout the book consist chiefly of line drawings, and, in the main, are good, because they convey an impression of the salient features on which diagnosis is based. The coloured plates might have been made much more comprehensive with advantage.

The book will be found extremely useful.

The Glycosides.

By E. F. ARMSTRONG, D.Sc., Ph.D., LL.D., F.R.S., and K. F. ARMSTRONG, B.A., B.Sc. London: Longmans, Green and Co. 1931. Pp. 123. 12*s*. 6*d*.

THIS book represents the chapters devoted to the glycosides from the authors' work entitled the "Carbohydrates and Glycosides." From now onwards this work will consist of two monographs. This one provides a masterly summary of the literature and not merely a catalogue of facts. It is written by workers who are able to give the general chemical reader a clear insight into the present position of synthetic organic chemistry in relation to this difficult field.

The most interesting sections are those which deal with modern developments. In this field, as the authors point out in the preface, the names of Prof. Robinson and of Prof. Haworth are predominant. The authors have given us a clear description of present-day views in relation to the pyranose structure of sugars; this is now to be regarded as a definitely established fact. Prof. Robinson's work on the synthesis and constitution of anthocyanins is well summarised, the main underlying principles of this work being made clear to the general reader.

The volume is a worthy addition to this well-known series of monographs on biochemistry.

Osler and Other Papers.

By WILLIAM SYDNEY THAYER, M.D., LL.D., Emeritus Professor of Medicine in the Johns Hopkins University. London: Humphrey Milford, Oxford University Press. 1932. Pp. 386. 21*s*. 6*d*.

Prof. Thayer, known to have been the closest friend of Osler, has placed Osler's name on the title page of this volume, which he commences with a series of reminiscent chapters that will be read in recapitulation or summary of a large literature; the rest of the volume is formed by a collection of addresses and papers delivered at intervals during an active professional and university life. These deliveries are interspersed throughout with comments on men and things medical which make agreeable reading. Some of the essays may be familiar to many readers such as the "Medical Education of Jones," which has certainly been published more than once before. Among the most suggestive of the papers we should place a biographical sketch of the Rev. Samuel Robert Calthrop, the interesting uncle of Lord Alverstone, Lord Chief Justice of England at the beginning of this century, who migrated to Canada, being unable to take a degree at Cambridge because he refused to sign the Thirty-nine Articles. A paper on Laennec is also excellent, and incidentally gives evidence of the real shake-up given to the medical profession in America by "Martin Arrowsmith." Mr. Sinclair Lewis's book is alluded to in more than one chapter with none of the resentment that might have been expected. Such repetitions occur in other places, and the author is aware of their presence, but they are unavoidable in any collection of public deliveries, for the pertinence of the same allusions and quotations must be present on many different occasions when the themes of the discourses are similar in many respects.

Prof. Thayer's volume displays its author as a man with a warm heart and much erudition.

Laboratories: Their Plannings and Fittings.

Second edition. By A. E. MUNBY, F.R.I.B.A. London: G. Bell and Sons. 1931. Pp. 224. With 134 diagrams and plans. 30*s*.

ANY laboratory worker of spirit who has to see to the building of a new department will no doubt take his own advice about the arrangements sooner than anyone else's. But it will be a great advantage to him to study a book such as this which goes into the details of fittings, for probably no one has ever seen all the neat devices that have been thought of, and Mr. Munby describes a number of them. The function of the book is indeed to suggest possibilities between which those responsible must choose. The book would, we think, be even more useful if it were arranged under the headlines walls, windows, drains, and so forth, rather than under physics, chemistry, and zoology. The very important matter of making the best of the natural lighting needs fuller treatment; few realise the advantage of cutting up the windows as near the ceilings as possible.

The Genius of Louis Pasteur.

By PIERS COMPTON. London: A. Ouseley. Pp. 361. With 8 plates. 12*s*. 6*d*.

THERE are two or three satisfactory one-volume lives of Pasteur in English already—satisfactory, that is, so long as he is treated as a national hero who was, personally and scientifically, beyond criticism. This latest addition is quite unnecessary. In matter it is about as good as the others; in manner it is distinctly inferior; emotional journalism is not the best medium for the chronicles of natural knowledge.

Division Palatine.

By VICTOR VEAU, Chirurgien de l'Hôpital des Enfants Assistes. With the collaboration of S. BOREL. 1931. Pp. 568. Fr.140.

Traitement du bec-de-lièvre unilateral.

By PAUL PLESSIER, Ancien Interne des Hôpitaux de Paris. Paris: Masson et Cie. 1931. Pp. 145. Fr.30.

BOTH these books deal with the methods practised by Victor Veau in the treatment of harelip and cleft palate. They give an excellent presentation of the problem and of Mr. Veau's solution of it. Most minute descriptions of the technique are supplied, and they are illustrated by numerous and very effective line drawings. Both volumes should be of absorbing interest to anyone who undertakes this kind of work, and form an important contribution to the literature of these malformations.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 20, 1932.

COMMEMORATION CEREMONIES.

THE Hunterian Oration, with which this issue of THE LANCET opens, is devised on an original plan, and this is noteworthy because over 100 of these addresses have now been delivered, centring round the personality and work of the famous man. Mr. WILFRED TROTTER has written no biography whatever; he has taken it for granted that all his audience would know much of the life-history of JOHN HUNTER, and be aware of what the world owes to the learning and industry which are exemplified in the wonderful collection, the Hunterian Museum. But he asks pertinently what is the particular fitness of a commemorative oration to HUNTER over and beyond the historic monument of the museum which he erected, whose orderly richness has been, and is being, steadily amplified by learned curators. And he supplies the answer, which will be a little unexpected to those who have not previously considered HUNTER'S work closely, but have been content to accept the estimate of him implied in the familiar cognomen of "the father of English surgery." "It is impossible," says Mr. TROTTER, "not to be struck by a certain disproportion between the amount of energy and genius that was expended and the harvest of substantial knowledge that was gathered"; in short, the museum, and the clinical and biological labours represented by its formation, do not tell the whole story, and the pious duty remains to supplement it from time to time.

HUNTER suffered from the faults of an imperfect education and consequent inability to express himself clearly. Researches undertaken with wonderful imagination and vigour and over an enormous range did not show immediate results. The fundamental nature of the problems which he set himself to solve would anyhow have necessitated the leaving of loose ends; it would have been impossible for him to put Q.E.D. neatly after demonstrations, the objective of which could not always have been clear to himself. This will often be the disability which confronts great imaginers—their genius will be ahead of their accomplishments. In many ways the supreme LEONARDO DA VINCI resembled JOHN HUNTER. LEONARDO'S imagination was unlimited, and the difficulties which he proposed to solve in the theory and technique of art, in physiology, and in physics concerned the foundations of exact human knowledge. He was ardent and incredibly energetic, but the work which he left behind him was scanty in proportion to his efforts and his genius. And the same may be said of HUNTER. LEONARDO'S remaining masterpieces make a small show materially when compared with the grand museum, but the museum can be regarded, when we remember the state in which it was acquired by the nation, as notes for further work. HUNTER, like LEONARDO, counts more as the founder of a school of thought than as the performer of accomplished work. For the rôle of pioneer the great Italian, despite the perpetual wars in the middle of which he lived, had this advantage—the Italian courts in the fifteenth century were forcing-houses of art. Very different was it with HUNTER, whose period lay, as Mr. TROTTER says, when there was little help for him in the general body of science, and when equipment was primitive. He carried on his researches, with only a vague idea of the nature of wound infection, and with no knowledge of histology, in a world largely indifferent to scientific research. But by his example of the way in which experiment must be tested as well as instituted, and in which knowledge must be collated as well as collected, he revolutionised the surgery of the day with enduring consequences. HUNTER'S own world did not know what he was doing, and it does not seem clear that he knew himself the implications of his huge labours: in his profession he was a practical success—that all men could see-; but that he was one of the world's greatest philosophers escaped attention.

Towards the close of the Oration Mr. TROTTER shows us the instinctiveness of commemorative rites, as displayed in the feasts of primitive tribes. Always the idea behind the primitive mind has been that by ceremony heroic virtues may be made transferable, and when the cruder methods of accomplishing this had been abandoned, it was natural to attempt to keep up the personality of the dead hero by recalling his virtues on stated occasions. But all will agree to a proposition which Mr. TROTTER here puts forward that with the process of time it will be increasingly difficult to separate the commemoration of the dead from the responsibility for their treatment during life, and this will lead to changes in the pious rites. The discoverer is not responsible for the reception of his discoveries. But as the world grows wiser, new ideas cannot be received with the timidity or the opposition which have too often hitherto been their lot. The sifting of wisdom from pretence and of assumption from accomplishment will be within the power of many of the discoverer's contemporaries, and commemorative rites will then record acknowledged triumphs rather than the sadness of neglect.

X RAY PROTECTION.

THE British Protection Committee, the first of its kind in any country, had to face formidable difficulties when, in 1921, it undertook the task of formulating recommendations to promote the well-being of the X ray and radium worker. Practically no published data were then available, there was no physical unit of X ray dosage, and the best that could be done was to attempt to correlate on a physical basis the practice of radiologists of standing. The recommendations were framed with

regard, on the one hand, to the safety of the operator, and, on the other, to the desire not to cramp progress. The Committee's efforts received the sympathetic coöperation of the British industry, without whose support little could have been effected. There has been no question of legalising these recommendations, but the Ministry of Health, the Ministry of Pensions, the Board of Trade, the Home Office, and H.M. Office of Works, among others, took cognisance of the Committee's work. As time went on, the recommendations needed to be modified here and there in the light of experience. At first protective devices tended to be heavy and clumsy, and excited much criticism on that score, but presently it was realised that these objections could be met by mounting the protective container close to the tube; thus the self-protected X ray tube came into being, its protective value conforming to the British figures. From the outset too the Protection Committee invited and received the coöperation of the National Physical Laboratory which has tested many kinds of protective materials, and has inspected several hundred X ray departments in all parts of the British Isles, thus giving valuable and wide-spread effect to the Committee's work. At Stockholm in 1928 the British recommendations were adopted by the International Congress of Radiology which at the same time set up an International Protection Committee with Dr. G. W. C. KAYE and Dr. S. MELVILLE as honorary secretaries. The effect of this action was profound; for whereas at Stockholm protective devices were scarcely found outside the British section, three years later in Paris they permeated the entire exhibition and had clearly become a world-wide routine.

The international recommendations represent an attempt to embody an ideal. The Committee aimed at main principles and simplicity rather than detail, and the recommendations have come to serve as a connecting link between countries which have formulated national recommendations in greater detail to suit their own requirements. Among these are Austria, Czechoslovakia, Denmark, Germany, Greece, Holland, Hungary, Italy, Norway, Russia, Spain, Sweden, Switzerland, and the United States. In every case the major principles are maintained, some of them are more drastic in detail than the international code, some have been given legal effect. These various national recommendations have recently been collected and compared by the League of Nations Health Organisation in a comprehensive brochure [1] by Dr. H. WINTZ and Dr. W. RUMP, of Erlangen. While little or no recognition is given in this treatise to the pioneer part this country has played, it would be ungenerous not to bestow high praise for its thorough and critical treatment of the main issues. Radiation protection, electrical protection, fire protection, and hygienic measures are discussed, and the inference is unmistakable that the international recommendations are reasonable and practical. Reference is made to the work of medical investigators in different countries who have made estimates of the tolerance dose in terms of the international unit; they are all of the order of 10^{-5} *r* per second. There is good agreement as to the lead-absorption curve of X rays, making it possible to correlate the tolerance dose with the lead protection proper to different conditions. The results are a close confirmation of the protection figures adopted by both the British and the International Committees. The bibliography of original papers, containing between 500 and 600 references, bears ample testimony to the world-wide interest which the subject has excited.

The international, in common with many of the national, recommendations refer to the value of periodic blood examinations in order to reveal the physical condition of an X ray or radium worker—a precaution fully endorsed at a recent meeting of the British Institute of Radiology. If it could be arranged for the records of such examinations to be collected and digested by some central body, the results would be of great service to the International Committee when they next confer. In the case of radium workers, periodic clinical and blood examinations are regarded as vital by the Radium Commission. There has been a certain amount of misunderstanding as to the degree of protection that the walls of X ray rooms should provide against scattered radiation. The international recommendations make it plain that when a modern self-protected tube is used additional protection on the walls is often not necessary, except perhaps in the region of the operator or in the direction of the beam. If the walls are of 9 in. brick or concrete, the lead equivalent is about 2 mm., which means that normally no additional protection is anywhere necessary. The fact that masonry walls may be adequately protective in themselves is sometimes lost sight of and unnecessary demands for additional protection are occasionally made by radiologists and architects. On the question of ventilation it does not appear always to be realised how moderate is the international recommendation of ten changes of air an hour. The Home Office has published the results of exhaustive inquiries on the subject,[2] the values recommended for various types of occupation ranging from 6 to 30 changes an hour. The value adopted by the International Committee is only half as much again as the figure given as the minimum. As an illustration, the ventilation requirements for a room as large as 25 × 20 × 11 ft. high may be met by the smallest propeller fan normally fitted—namely, one of 12 in. diameter. The outlet however must be in the right place and the inlets big enough and properly distributed. There need then be no draughts, and the fresh air, adequately warmed, of course, will dispel the sense of weariness and lassitude so common in X ray departments. This langour is claimed to be largely associated with the presence of traces of ozone and nitrous fumes,

[1] Protective Measures against Dangers resulting from the Use of Radium, Röntgen and Ultra-violet Rays. Allen and Unwin, Ltd. Pp. 114. 3*s*.

[2] Ventilation of Factories and Workshops. Welfare Pamphlet 205. 1927. 6*d*.

which are produced in varying degree by high-voltage equipment, and which appear to be definitely toxic.[3] There are, no doubt, many who can cite illustrations of the improved health in X ray workers resulting from improved ventilation conditions. One last point may be made. The growth in power of X ray generators makes it more than ever important to provide earthed guards and shields for high tension circuits. During the past two months alone there have been reported in the press three serious accidents, one fatal, arising from high tension shocks of this kind. This aspect is fully stressed in the revised international recommendations, especial approval being given to equipment which is completely enclosed in earthed conductors. Both the recent Paris and London radiological exhibitions showed illustrations of how such protection can be secured.

To realise the magnitude of the work which the protection committees have succeeded in accomplishing, one has only to cast back to the deplorable conditions which obtained in the average X ray department 20 years ago. There will, however, always be further work for such committees to do, if only in keeping pace with progress, and the British Institute of Radiology marked its sense of the appropriate by concluding its discussion with expressing thanks to the International and British committees for their beneficent work in the past and the hope of like services in the future.

THE NURSING COMMISSION'S REPORT.

WITH the publication to-day of a Final Report, THE LANCET Commission on Nursing concluded their labours. After 14 months' deliberation on evidence submitted, a representative group of 12 have been able to issue a unanimous report to which many specific recommendations are attached, others being implied in the text. The personnel of the Commission included matrons, physicians, and chairmen of hospitals; it included also an economist, a head-mistress, and others concerned with the careers open to educated women. It is remarkable that a body composed of elements differing so widely in outlook should have found themselves in complete agreement on points of detail as well as of principle. It would be unbecoming for us to praise the Report for its constructive suggestions, or to estimate the extent of the changes that its recommendations may help to bring about. The table of contents and the introduction, set out on p. 415, show the scope of the investigation; the Commission have not confined themselves to the enunciation of principles, but have submitted detailed proposals designed to overcome difficulties. For example, a scheme for the migration of nurses between voluntary and municipal hospitals without loss of pension rights is outlined [4]; the extension of the privilege of State registration to nurses trained in tuberculosis hospitals is shown to be possible without the addition of another Supplementary Part to the Register; a demonstration that nurses do pay indirectly, if not directly, for their training disposes of an assumption to the contrary which has had a far-reaching effect on the economics of the nursing profession. Apart from questions of professional status or economics, the Commission favour a general relaxation of discipline outside working hours, and opportunity, even encouragement, to the hospital nurse to keep up outside interests.

By a coincidence, the result of a survey on nursing education in Canada appeared in the *Montreal Daily Star* on the very day (Jan. 26th) on which the Final Report of THE LANCET Commission was signed. The survey has extended over two years under a joint committee of the Canadian Medical Association and the Canadian Nurses' Association. Its terms of reference differ from those of THE LANCET Commission, but some of the conclusions arrived at are on parallel lines. It is evident that the problem of combining the theoretical and practical instruction of the student nurse with her routine work, without overtiring her unduly, awaits solution in Canada as in this country. But the problem in Canada is not a shortage but an excess of nurses; one of the most significant of the recommendations made is that until such time as the demand for nurses' services overtakes the supply, hospital authorities "should aim gradually to decrease the number of student nurses by approximately 50 per cent., and to increase their staffs of graduate nurses by about 28 per cent. of the student personnel." The danger of inviting more probationers to take a nurse's training than the profession could absorb, in order to provide our hospitals with student labour, has not been ignored by THE LANCET Commission. In view of the shortage of staff nurses and sisters this danger may seem remote at present in England, but in any calling unemployment will result eventually unless the number of apprentices is kept within reasonable bounds. The safeguard is outlined by the Commission—namely, the limitation of the hospitals approved as training centres to those which can provide adequate experience.

[3] See, for example, Guthmann, H.: Münch. med. Woch., 1922, lix., 89; Hill, L., and Flack, M.: Proc. Roy. Soc., 1911, lxxxiv.B, 404.

[4] See THE LANCET, Feb. 13th, p. 374.

PAYING PATIENTS AT EDINBURGH INFIRMARY.—The committee of the court of contributors of Edinburgh Royal Infirmary reported against the proposal of the board of management to set aside beds for paying patients. At a meeting of the court recently, however, the proposal was supported by 27 votes to 26. One of the chief grounds of opposition was that to charge for treatment would be a departure from the 200-year "ever open door" policy of the Infirmary. Prof. Mackay stated at the meeting that in his experience half the people he had treated could have paid.

FINANCES OF BRISTOL HOSPITALS.—A scheme to raise £250,000 in seven years for hospital extension in Bristol has been launched at a citizen's meeting, under the auspices of the Lord Mayor's Hospital Extension Fund. The recommended works are: Providing a new hospital at Winford with 100 beds; reconstructing and enlarging the Eye Hospital; providing additional accommodation at the Royal Infirmary for cancer patients, and extra beds at the General Hospital; adding an out-patient department and new home for nurses to the Children's Hospital; enlarging Winford Orthopædic Hospital; providing sun-balconies, children's wards, altering and enlarging the out-patients' department at the Homœopathic Hospital. Last year 130,000 patients were treated in Bristol Institutions.

ANNOTATIONS

ASBESTOS IN LONDON TUBE RAILWAYS.

IF it be true that asbestos fibre was woven into cloth and used in ancient Rome, the medical profession has been negligent in its failure, until quite recently, to detect the existence of chronic industrial pulmonary asbestosis. The first fatal case of pulmonary asbestosis was recorded by H. M. Murray in 1900, and a full account of the disease was given two years ago in our own columns [1] by Dr. W. B. Wood and Dr. S. R. Gloyne. The Home Office inquiry into the effects of asbestos dust on the lungs, published shortly afterwards,[2] has been followed by the adoption of active measures to suppress dust in asbestos factories. In many such factories the introduction of exhaust ventilation and the replacement of dry processes by wet have changed the atmosphere in which the work is carried out until it is now free at least from visible dust. The operation of cleaning the carding machines by steel brushes, undoubtedly a potent source of fatal pulmonary asbestosis, has now been replaced by a vacuum method. In view of the fact that the dust particle producing the lesion in the lung has a diameter of only 2 μ to 10 μ it is obvious that the dust must be suppressed at its source; the use of respirators is futile. Illustrations were recently given in the daily press of an experiment which has been devised to coat the London tubes with asbestos in an attempt to minimise noise. In these illustrations the workman was provided with a double projector, fitted with triggers by which he released from two independent jets a spray of pulverised asbestos, apparently under considerable air pressure, and a spray of some adhesive solution. According to the illustrations the asbestos powder passed through the atmosphere for something like six inches before meeting the stream of adhesive. Though it is true that the workman was provided with a mask, it is equally true that his clothing was covered by asbestos powder. Experience in asbestos factories would indicate that, should the experiment of the London tube railways lead to an extensive use of this method for deadening noise in all the underground railways of London, then a large increase in industrial pulmonary asbestosis may be expected in years to come. In the House of Commons last week (see p. 374) Dr. W. J. O'Donovan asked the Home Secretary if adequate precautions had been taken to prevent fatal lung disease in workers lining London tubes with asbestos. Sir Herbert Samuel replied that he had no powers of control in respect of this work under the Factory or other Acts, and had no information at present as to the precautions taken. But he promised to make inquiries.

HIGH BLOOD PRESSURE AND STROKES.

DESPITE much investigation since Allbutt's original description of high blood pressure there is still doubt about its cause and symptoms, especially in the earlier stages. It is, as a rule, only later on, when the condition is fully developed and grave symptoms have supervened, that patients with hyperpiesis are seen and studied by the specialist. Since by then irreparable damage has been done, it is to earlier recognition and study that we must look for advance in our knowledge. The condition is so common as to be an ideal subject for study by the general practitioner, and in an essay awarded the Sir Charles Hastings clinical prize for 1930, Dr. H. O. Gunewardene [1] records observations and conclusions on the "sudden severe attacks" affecting the nervous system that are met with in this disorder. He finds that minor paralytic and sensory phenomena are more common than the major apoplectic fit associated with a severe cerebral hæmorrhage. These minor attacks may be either permanent or transient, and their duration is sometimes only a matter of minutes or hours. In distribution they may be hemiplegic, monoplegic, or localised to one part such as the eye or tongue. The sensory phenomena are similar to the motor in distribution, and take such forms as paræsthesia, numbness, pain or blindness. Dr. Gunewardene finds that severe cerebral hæmorrhage is rare in patients whose diastolic pressure is less than 135, whereas the less severe strokes occur with diastolic pressures of between 115 and 125, no case being seen with a diastolic pressure less than 115. His observations also show that cerebral hæmorrhage is unusual in patients under observation who have been warned to lead a quiet and restricted life, whereas fatal hæmorrhage is likely in patients carrying on their normal occupation and making no allowance for their hypertension. He also makes it clear that both fatal cerebral hæmorrhage and transient strokes are very uncommon once cardiac failure has begun or there is clinical evidence of cardiac enlargement.

RESULTS OF GASTRECTOMY FOR CANCER.

IN a communication [2] to the Academy of Medicine, on Jan. 19th, Prof. H. Hartmann reviewed the late results in 125 cases of gastrectomy for cancer of the stomach, observed for periods ranging up to 27 years. Of the 25 patients who showed no sign of relapse, all but one had been under observation since the operation for periods varying between 1 and 27 years. There were, further, seven patients who had died, but not of cancer, and these deaths had occurred from 3 to 19 years after the operation. Another group included 13 patients, the cause of whose death from 2 to 13 years after the operation was not known; there may, perhaps, have been some deaths from recurrence of the disease among these 13. Lastly, there were 80 patients, whose death was due to recurrence of the disease, in 31 cases during the first year, in 35 during the second, in 8 during the third, and in 6 during the fourth year after the operation. Altogether 39 patients (or 31 per cent.) survived the operation by three years or more, and Prof. Hartmann is inclined to put at 29 or 30 per cent. the proportion of his patients for whom a cure could be claimed. He has achieved this comparatively successful result, not so much by sacrificing the greater part of the stomach, as by removing with the greatest care the groups of glands which are most subject to invasion. He argued that even better results would certainly follow earlier diagnoses and operations performed before the disease had extended beyond the first relay of glands. His conclusion that "le cancer de l'estomac est un bon cancer au point de vue opératoire" is most

[1] THE LANCET, 1930, i., 445.
[2] Report on Effects of Asbestos Dust on the Lungs and Dust Suppression in the Asbestos Industry; Merewether, E. R. A., and Price, C. W., 1930. London: H.M. Stat. Office. See THE LANCET, 1930, i., 870.

[1] Brit. Med. Jour., Jan. 30th, p. 180.
[2] Bull. de l'Acad. de Méd., cvii., No. 3.

encouraging. His communication would, however, have been still more interesting had he stated how many other cases of cancer of the stomach he had observed in the same period and had not operated on for some reason or other. In the discussion following this communication, Prof. Chauffard gave support to his scepticism as to operative cure of cancer in general by recording the case of a woman who died at the age of 92, when cancer developed in the scar of an operation for cancer of the left breast more than 50 years earlier. Had she died at the age of 91, she would have been cited as an irrefutable case of cure of cancer by operation. This point is, perhaps, of academic rather than practical interest; most patients operated on for cancer would not be greatly perturbed by the prospect of the disease recurring 50 years later.

PHYSIOLOGY OF WEEPING.

IT is well known, at any rate by mothers, that infants do not shed tears until they are several weeks, or in some cases months, old. Darwin observed the fact and comments on it in his book on "The Expression of the Emotions in Man and Animals." Mr. Treacher Collins, in a recent article,[1] explains that this is not because the lacrymal glands are not developed at birth but because weeping is not a reflex action in the ordinary sense, but rather a conditional reflex analogous to the secretion of the salivary gland that may be excited by the sight or even the thought of food. Weeping, in fact, is a late physiological development, both in the individual and in the race. In spite of legends about elephants or crocodiles, it seems to be established that no animals except man do actually shed tears. Mr. Lindsay Johnson experimented on crocodiles by squeezing the juice of an onion mixed with common salt into their eyes but obtained no confirmation of the myth. The physiological importance of the lacrymal secretion in man is in the first place that it keeps the surface of the cornea well lubricated and free from minute particles of dust, and in the second place that its most important constituent, lysozyme, acts as a very efficient bactericide. This is the function, not of the excessive secretion known as weeping, but of the ordinary constant secretion which may be increased by reflex action following upon any irritation to the cornea. So important does Mr. Collins consider it that he suggests that the immunity of infants from ophthalmia neonatorum in whom Credé's treatment has been employed at birth is more probably due to the lysozyme in the lacrymal secretion than to any germicidal property in the very dilute solution of nitrate of silver employed. For although the lacrymal glands of the young infant do not react psychically they do react reflexly to any ordinary stimulus and the instillation of drops acts as such. Mr. Collins goes on to consider the other protective mechanisms of the eye and especially the firm closure of the lids which is often associated with weeping. This is effected by the orbicularis oculi muscle and especially by certain fibres of it situated near the conjunctival surface of the lid and known as the "muscle of Riolan," which are found to be much more highly developed in man than in any other mammal. The effect of tight closure of the lids is to protect the ocular blood-vessels from the effect of any sudden increase of blood pressure due to extraordinary expiratory efforts with a closed glottis. It is Nature's corrective to the sudden suffusion of the blood-vessels of the eye which attends any violent muscular effort, especially if the jugular veins are at the same time compressed by a tight collar. In this connexion, Mr. Collins mentions the relief that may sometimes be given to a tendency to subconjunctival hæmorrhages by changing the habit of wearing tight collars, also the rationale of bandaging the eyes after any eye operation involving an opening into the globe.

[1] Brit. Jour. of Ophthalmology, Jan., 1932, p. 1.

ASPHYXIA NEONATORUM.

THE methods of peripheral stimulation formerly employed to encourage respiration in the newly born —such as smacking, pinching, and cold-tubbing— have now been abandoned because it is realised that the necessary stimulus is almost certainly chemical rather than physical. But it is still by no means certain exactly what this stimulus may be. Many have held that an increased carbon dioxide tension of the blood reaching the respiratory centre is the operative factor, and on the analogy of the successful use of carbon dioxide in the treatment of carbon monoxide poisoning (where the tension of both CO_2 and oxygen in the blood is low) Yandell Henderson has consistently and eloquently pleaded the value of CO_2 in stimulating respiration in the newly born. From an extensive study of the fœtal blood, however, N. J. Eastman[1] now calls the rationale of this method of treatment in question. He finds that in asphyxiated infants the blood shows a greatly increased CO_2 tension and a serum pH reduced to the lower limits compatible with life, and he argues that the administration of CO_2 to stimulate respiration in such cases is not only valueless but actually harmful. He regards the primary blood chemical change as a reduction in the oxygen content of the fœtal blood, and emphasises that the chief therapeutic indication is therefore for oxygen. Of the simpler methods of filling the lungs with air, manual artificial respiration and mouth-to-mouth insufflation are those most readily available; it should be recognised, however, that neither is without danger, since ribs may easily be fractured by rough handling and the lung or stomach ruptured by too vigorous insufflation. Oxygen may also be given directly by mask or nasal catheter, and probably the ideal method would be a combination of the former with artificial respiration carried out by a Drinker respirator, which was described in THE LANCET last year (1931, i., 1186).

[1] Bull. Johns Hopkins Hosp., January, 1932, p. 39.

ERYTHEMA NODOSUM.

THE causation of erythema nodosum has long perplexed students of the disease, the main views on its origin at the moment falling into three groups. First there is the theory of those who, impressed by the association with tuberculosis which has been noticed by many workers, particularly in Scandinavia, regard the eruption of erythema nodosum as the exanthem of tuberculosis. Then there are those who, while recognising the association between tuberculosis and erythema nodosum, realise that this association is by no means constant and are therefore led to believe that the disease is an acute specific fever—"nodal fever." Finally, there are those who look on erythema nodosum as an allergic manifestation which may occur in allergic states due to various sensitising agents. Its association with tuberculosis they explain by the fact that the tubercle bacillus is a common allergen, as evidenced

by the frequency with which a positive tuberculin reaction is found amongst the general population. Dr. W. R. F. Collis[1] has recently produced strong evidence in support of this view. In a study of eight children suffering with erythema nodosum, five were found to be definitely tuberculous by history, clinical findings, positive Mantoux test, and in three cases by the discovery of tubercle bacilli in the stomach wash-out. The remaining three cases however presented no evidence of tuberculosis and the Mantoux test was negative in all. But these three cases gave a strongly positive reaction to an intradermal injection of hæmolytic streptococcal endotoxin, a reaction which closely resembled the nodes of erythema nodosum itself. These three cases followed acute streptococcal sore-throats in from 5 to 20 days. Dr. Collis's work makes it clear that erythema nodosum is neither a specific disease nor invariably tuberculous in origin, but that the eruption is the result of the action of the soluble products of certain organisms on tissues already hypersensitive. It is thus possible that it may occur in other infections besides those due to the tubercle bacillus and hæmolytic streptococci.

THE SCHÜLLER-CHRISTIAN SYNDROME.

THE association of growths in the membrane bones of the cranium with diabetes insipidus and exophthalmos was first ascribed to some form of dyspituitrism, but of recent years the tendency has been to place it in the group of general metabolic disorders. In this group there are already such maladies as Gaucher's disease in which the chemical disturbance appears to affect kerasin, the Niemann-Pick disease in which phosphatide is incriminated, and perhaps here should be included a curious form of hepatic enlargement associated with excessive deposition of glycogen as described by Gierke.[2] In a recent account[3] of an example of the Schüller-Christian syndrome by Dr. R. Attig of the University Children's Clinic in Berlin, the author refers briefly to these other defective storage diseases before proceeding to describe his case under the title of generalised xanthomatosis, cholesterol being cited as the chemical substance affected in this condition. The patient was a boy of 3½ years who had been perfectly well until a year previously when he fell out of bed and three weeks later developed a tumour in the neighbourhood of the left temple with protrusion of the left eyeball. The exophthalmos became less in the next few weeks but the bony tumour remained stationary. Shortly afterwards the boy was noticed to be limping with his left leg and about a year later a swelling appeared at the root of the nose which led to his coming under hospital observation. Swellings were found on the skull in several situations and radiological examination showed the curious areas of defective bone described by Christian as giving a moth-eaten appearance to the picture and by Attig as being like a map. Changes were also found in the left iliac bone. The blood cholesterol was raised to 244 mg. per 100 c.cm. and on the skin of the back between the shoulder-blades there were numerous small papules of varying size and of a reddish-brown colour. The swelling in the neighbourhood of the glabella was punctured without result and a small piece was removed for section. It was of a definitely yellow tint and on examination showed the large foam-cells, characteristic of the disease, which contained a substance doubly refractive to polarised light. The histological examination indicated that the tumour was a xanthoma. While the child was in hospital the tumours in the scalp got bigger while the skin condition became more widespread and numerous punctiform hæmorrhages also appeared in the skin. Death occurred four months after admission and post-mortem examination confirmed the xanthomatous nature of the changes in the flat bones (skull and ilium), the long bones being free. The exophthalmos present at the onset of the disorder was found to have been due to a xanthoma of the dura mater. The lymphatic glands throughout the body contained numerous hæmorrhages. The cause of the condition is unknown, although trauma is not infrequent in the history of the onset, as in the case here described. The affection of the flat bones, the onset in a child about two years of age, the skin changes and the exophthalmos, all characteristic of the Schüller-Christian disease, were present in this case; but the curious association with diabetes insipidus, present in some of the published cases, was absent, probably because there were no marked changes in the bones in the region of the sella turcica.

[1] Quart. Jour. Med., January, 1932, p. 141.
[2] Zieglers Beitr. z. Path. Anat., 1929, lxxxii., 497.
[3] Jahrb. f. Kinderh., 1932, cxxxiv., 196.

ANOTHER VIEW OF ARTERIO-SCLEROSIS.

ARTERIO-SCLEROSIS has certainly not been neglected by clinicians and experimenters, but it is still an obscure condition. Any thoughtful work on it is therefore welcome, and it is all to the good that Prof. Plesch, in the paper printed elsewhere in this issue, makes suggestions that will not be generally accepted at first sight. It seems to be agreed that arterio-sclerosis, or athero-sclerosis, is a manifestation of a general systemic disease, but the stages leading up to it are not established, and it is on this point that Plesch has definite theories. He advances the view that athero-sclerosis is a healing process in that it serves no other purpose than to raise the resistance of the walls of already damaged vessels at points of stress or strain, the muscular and elastic elements of the walls of the blood-vessels being previously weakened by an atonic state of the vessel. He sets out to prove his thesis by experimental work, together with clinical and pathological investigations. By a process which he himself has perfected he has injected the coronary arteries, and remarks on the irregularity of their calibre as a result of dilatation; in this connexion it is of interest to note that ophthalmic surgeons rely more on the irregularity of calibre of the retinal vessels as indicating vascular disease than on any other sign found in the fundus. If Plesch's theories are correct he will provide us with an explanation of the failure clinically of drastic lowering of the blood pressure or constant use of vasodilators in the treatment of high blood pressure.

There are many who will disagree with Prof. Plesch when he says that most athletes die before they are 50 years of age, and that they are seldom capable of great physical exertion when they attain middle-life. Possibly this statement needs qualifying, and he is no doubt referring to those who give their whole time to athletics, and not to those who take part in sport merely as a recreation. Much work has been done on the effect of exercise on blood pressure, and it is pretty generally agreed that exercise raises the systolic pressure considerably, and the diastolic to a less extent, thus increasing the pulse pressure; the systolic pressure remains high

for a considerable time after the exercise is finished, and slowly returns to normal. This is not considered injurious, and Paul White, in his book on "Heart Disease," says that recent studies indicate that athletes do not suffer early disability or death because of their exercise in youth; even veteran Marathon runners have not shown enough hypertrophy of the heart to be evident on radiographic examination. When such conflicting views are expressed, it seems necessary to have more precise knowledge on this important subject, more especially as athletics are playing an increasingly important part in everyday life.

DRAUGHTS AND COLDS.

King Alfred, so Chesterton informs us, "fought as gravely as a good child at play"; and it is in a similar spirit that C.-E. A. Winslow and Leonard Greenburg have approached the study of Vasomotor Reactions to Localised Drafts.[1] Their inquiry was undertaken "to determine the changes in distribution of the superficial blood-supply resulting from localised drafts, with special view to the possible effects of these changes upon the condition of the upper respiratory tract." There is certainly precedent for this endeavour, and they are able to give an impressive list of workers who have already investigated the truth of the popular belief that one can catch cold by sitting in a draught. Leonard Hill and F. F. Muecke,[2] it appears, using the method of direct observation with a nasal speculum, were the first to report the fact that in a warm atmosphere the mucous membrane of the nose became moist and hyperæmic, and in a cold atmosphere contracted and ischæmic; on sudden chilling, however, the membranes were often found to remain swollen but ischæmic. It is this abnormal condition where the swollen, spongy tissue lacks the protective effect of an ample blood-supply, which is thought to favour bacterial invasion.

Winslow and Greenburg have adopted elaborate methods to decide whether localised draughts play a more definite part than generalised chilling in the ætiology of respiratory infection. Seven different subjects, students of Yale University, submitted to a total of 26 experiments. Low temperatures were secured, in the room used for experiment, by opening the windows and turning off the radiators on the preceding night, and high temperatures by turning on the radiators and closing the windows. The experiments were performed with the windows closed to ensure known conditions within the room. On entering in the morning, the subject stripped himself and lay on a cot for 45 to 60 minutes, after which the following observations were made: the dry and wet-bulb temperature of the atmosphere; the cooling power of the atmosphere by the kata-thermometer; Glatzel mirror observation on the nose of the subject; visual observation of the swelling, redness and moisture of the nose and throat; pulse, respiration, and blood pressure; skin temperature on the surface of the body, and temperature observations on the nose and throat. He was invited to say whether he was comfortable or not. Temperatures were taken at five points in the oral and nasal cavities and at 17 points on the outer skin, and were measured by the thermoelectric method. When these observations were complete a yoke of beaver board partition was used to isolate the subject's head or feet, and the extremity chosen was then exposed to a draught of air from an electric fan for a period of 30 to 50 minutes; the previous observations were then repeated, with the difference that the temperature and kata-thermometer readings were taken both in the vicinity of the body and of the isolated extremity. The draught was then discontinued, and after a period of 5 to 50 minutes the complete series of observations was once more repeated.

The results of the inquiry confirmed those of other workers in showing that chilling of the body surface leads to contraction, ischæmia, and dryness of the mucous membranes of the nose; but there was nothing to indicate that localised, as opposed to general, draughts had any special influence on respiratory infection. Only one of the subjects developed a cold during the experiments. On this occasion, therefore, tradition appears to have been routed. But those who think they can produce immediate rhinorrhœa by walking barefoot on cold floors may still feel a little dissatisfied with the evidence against them.

[1] Amer. Jour. of Hyg., January, 1932, p. 1.
[2] THE LANCET, 1913, i., 1291.

STEENSEN.

THE Copenhagen Medical Society, taking, we learn, as their model the British habit, have decided to honour prominent men of medicine by instituting commemorative ceremonies, and as a commencement an Oration has been founded in honour of Niels Steensen, more familiar to us as Stensen or Steno, the discoverer of Steno's duct. In Holland as well as in Denmark the great physiologist is known by his Danish name Steensen. The first Steensen Oration was delivered on Jan. 11th by Dr. V. Meisen, well known for his surgical work on varicose veins and hæmorrhoids, an ardent student of medical history, and the translator recently into Danish of Harvey's de Motu Cordis. Steensen's life, as set out by Dr. Meisen, is of great psychological interest. He discovered in 1660 the excretory duct of the parotid, when he was only 22 years old, and was studying in Amsterdam. This was the commencement of an unfortunately short career as a physiologist, but during the next 14 years he showed himself a brilliant investigator; Michael Foster has referred with appreciation to his researches into the physiology of the muscles, of various glands, and of the brain, while Dr. Meisen stated in his address that Steensen was the first to show that the heart was "a muscle and nothing else." He says of the work on the lacrymal glands, that "it explained their structure, working, and functions; maintaining that the ducts were the outlet of the tears, the normal function of which was to keep the surface of the eye and eyelids smooth, and that the passage was only insufficient when the lacrymal fluid was secreted in excessive abundance." In fact Steensen disposed of the accepted belief that the tears emanated directly from

the brain. His work in relation to the functions of the mammæ and the ovaries was equally new and direct, while, before de Graaf, he maintained that the "testes muliebres" were ovaries, and demonstrated the yolk-sac and vitelline duct in a shark. Of his work on the brain, which contained much acute criticism of the knowledge and theories of the day, Dr. Meisen said: "One of his best known contributions to science is his lecture on the anatomy of the brain, delivered in French at Paris in 1664, where he begins in this startling way: 'Gentlemen. Instead of promising You to still your curiosity regarding the anatomy of the brain I have to confess to You my sincere opinion that I do not know anything about it.' . . . He then undertook—as Edward W. Adams[1] says—'the Socratic task of convincing the anatomical world of ignorance.' I quote one passage, which, like many other detached remarks or by-the-way sayings in his writings, has an address even to us in our times: 'To make the necessary inquiries for the discovery of truth a man's whole time must be taken up. . . . Physicians and surgeons cannot comply with this, because of their practise, nor professors because of their public demonstrations. Whole years may sometimes be necessary to discover what may afterwards be demonstrated to others in an hour.' The net effect of Steensen's studies was to correct the views of Willis, who located memory in the cortical substance, imagination in the corpus callosum, and common sense in the striate bodies."

Dr. Meisen proceeded to refer to researches made by Steensen in Italy and Malta into geology, a science to whose pursuit he was led by the dissection of the head of a dog-fish, the teeth of which indicated to him that the glossopetræ of Tuscany were in reality fossil teeth. His treatise "De Solido intra Solidum" is a pioneer work on geologic formation; it is a very rare book, but there are copies in the royal libraries of Copenhagen and in the British Museum, and it was translated into English in 1671. While engaged on this work in Italy he was summoned back to Copenhagen to take up the professorship of anatomy, but he held that office for only two years, for already theological leanings acquired during his Italian sojourn had become predominant. Accordingly, at the age of 36 he returned to Italy, and under the patronage of the Grand Duke of Tuscany, at whose court he lived, his scientific works were published, while the author went over to the Catholic faith, became absorbed in the teachings of the Church, and was eventually appointed to an episcopy in North Germany. He died in 1686, his death, Dr. Meisen suggests, being hastened by the rigorous manner of life which he imposed on himself out of piety, and is buried in Florence, a bust being placed over his tomb in the Basilica San Lorenzo in 1883.

Dr. Meisen closed his Oration by pointing out that in Steensen's time the classic authors and the Old Testament constituted the scientific basis of investigation, most of the scientific discoveries being made by men who were first of all scholars, as was Harvey. Steensen in particular was an ardent student of mathematics, the mathematical sense and the vigorous imagination being remarkably blended in him, as they were in Pasteur whom he resembles both in powers of intuition and boldness of conclusions. Comparing Steensen's work with that of his friend, and comrade, Malpighi, Dr. Meisen says: "It must always be remembered that Malpighi possessed that quite new instrument the microscope which enabled him to find gold where others could not, while he had a working life of 30 years and Steensen one of only 14 years." Certainly the orator justified the description of the Danish savant given by Michael Foster—"a singular man who 300 years ago pierced into questions which are still moving us at the present day."

[1] Adams in Medical Library and Historical Journal, 1904, vol. ii., No. 1.

A MORE SENSITIVE WASSERMANN TEST.

AT an early stage of its career the Medical Research Council appreciated that everything should be done to bring about the adoption of a thoroughly reliable Wassermann test. A series of observations (Special Reports Series Nos. 14, 21, and 78) were carried out by workers in this country, the result of which was to show that a properly standardised Wassermann test possessed a very high degree of specificity. Recently the introduction of certain precipitin tests, in particular the Kahn test in America, suggested in certain circles that the Wassermann test was not all that it should be, both in regard to sensitivity and to specificity. But at the recent Laboratory Conference on the sero-diagnosis of syphilis, held at Copenhagen in 1928 under the health organisation of the League of Nations, it was shown that the Wassermann test as carried out in this country had nothing to fear in comparison with any of the flocculation tests, and that the Wassermann test had as high, if not higher, qualities of specificity than any test yet devised for syphilis. It had, however, been felt that in the ordinary standardised Wassermann test, as used in this country, a few cases might have been missed; in other words, that the test might be more sensitive if that could be arranged without losing any of its high specificity. Several attempts have been made to increase the sensitivity of the Wassermann test by such things as fixation in the cold, decrease in the amount of complement, and changes in the antigen proportion, without apparently any very great success. It is therefore very interesting to see that Dr. Wyler has pursued this matter further[1] and, as an outcome of his investigations, has devised a method which he considers has increased the sensitivity of the Wassermann test by something like 20 per cent. The procedure he adopts is simply to double the quantity of the patient's serum in the test as ordinarily used. This, as he says, is of course no new principle; it is, for instance, used in carrying out the reaction with cerebral spinal fluid. Perhaps this is an admission on Dr. Wyler's part that a satisfactory quantitative Wassermann test can be carried out by using varying quantities of patient's serum. Using increased amounts of sera, Dr. Wyler has done a series of tests on 1000 sera, over 400 of which were from known cases of syphilis. Comparative tests were carried out against the ordinary Wassermann and against the Sigma test, and it seems that the test with the newer technique is definitely more sensitive than either. Confirmation of these findings will greatly enhance the reliance which is placed in this country on the Wassermann test. Dr. Wyler is to be congratulated on the lucidity with which he has put forward his data.

[1] A Method of Increasing the Sensitiveness of the Wassermann Test. By E. J. Wyler, M.C., M.D. Lond.; Ministry of Health, Reports on Public Health and Medical Subjects, No. 67. H.M. Stationery Office. 1932. Pp. 15. 4d.

MANCHESTER VICTORIA MEMORIAL JEWISH HOSPITAL.—It has been decided that in future the visiting hours shall be in the evening, on the ground of convenience for the working-classes.

SPECIAL ARTICLES

THE LANCET COMMISSION ON NURSING.

THE Final Report of THE LANCET Commission on Nursing was issued to-day.[1] It will be remembered that the Commission was appointed in December, 1930, to inquire into the reasons for the shortage of candidates, trained and untrained, for nursing the sick in general and special hospitals throughout the country, and to offer suggestions for making the service more attractive to women suitable for this necessary work. The members of the Commission were :—

The Earl of CRAWFORD and BALCARRES, P.C., K.T., F.R.S. (Chairman).
Miss M. D. BROCK, O.B.E., M.A., Litt.D., Headmistress, the Mary Datchelor Girls' School.
Miss L. CLARK, M.B.E., R.R.C., Matron, Whipps Cross Hospital.
Prof. HENRY CLAY, M.A., D.Sc., late Professor of Social Economics in the University of Manchester.
Miss R. E. DARBYSHIRE, R.R.C., Matron, University College Hospital.
Prof. F. R. FRASER, M.D., F.R.C.P., Professor of Medicine in the University of London, Physician to St. Bartholomew's Hospital.
Mr. A. LISTER HARRISON, J.P., Chairman, Committee of Management, Metropolitan Hospital.
Dr. ROBERT HUTCHISON, F.R.C.P., Physician to the London Hospital and to the Hospital for Sick Children, Great Ormond-street.
Mrs. OLIVER STRACHEY, Chairman, Employment Committee, London and National Society for Women's Service.
Miss EDITH THOMPSON, C.B.E., Member of Council, Bedford College, University of London.
Sir SQUIRE SPRIGGE, M.D., F.R.C.P., Editor of THE LANCET, with
Dr. M. H. KETTLE, an assistant editor, as honorary secretary.

The Commission held 24 meetings, and the various subcommittees appointed held 25 meetings in addition.

At the first meeting of the Commission, held on Dec. 8th, 1930, it was decided to issue a questionnaire addressed to the responsible authorities of all the hospitals approved as training schools by the General Nursing Councils, and also to a sample of the hospitals not so approved. The procedure adopted in connexion with the issue of this questionnaire, and with the analysis of the information received, was set out in the First Interim Report of the Commission, which was published in THE LANCET of Feb. 28th, 1931. The Second Interim Report, containing the statistical analysis by Dr. Bradford Hill of answers to the questionnaire, was published in THE LANCET of August 15th, 1931. Both Interim Reports are reprinted as appendices to the Final Report. The information analysed was collected from 686 hospitals and relates to the conditions of service of a nursing staff numbering nearly 44,000.

Two other questionnaires were subsequently sent out respectively to trained nurses working in hospitals and to probationers known to have a good secondary education. In addition, groups of girls still at school and older girls were questioned. The results of all these inquiries are summarised in the Final Report.

A gratifying response was moreover received to a request for evidence, to which the press of the country gave generous publicity. The mass of correspondence received by the Commission was in itself an indication of the wide interest aroused in the investigation. We set out below the Table of Contents of the Final Report and the Introduction. Other excerpts from the Report will appear next week.

[1] Pp. 256. 2s. 6d.; 2s. 9d. post free. Obtainable from THE LANCET Office, 7, Adam-street, Adelphi, W.C.2, and from all booksellers.

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(xviii.) Second Interim Report: Reprinted from THE LANCET of August 15th, 1931. Statistical Analysis of the Questionnaire issued to Hospitals by THE LANCET Commission on Nursing. Dr. Bradford Hill's Final Report.

The Introduction to the Report.

In the introduction the scope of the Report and certain important considerations are defined as follows:—

1. Conditions of service and education in the nursing profession are being closely studied in many countries and from many points of view. Our own contribution to this study is a report on the shortage of candidates for work in hospitals in this country, and on means by which this shortage may be overcome. The object of our recommendations has been to suggest an adjustment of the conditions offered, in order to attract in sufficient numbers young women of the right type to fulfil an essential public service. We have not sought to look far ahead, and where we have considered such subjects as the costing system of hospitals, the arrangement and standards of professional examinations, the amenities of a nurse's life, or the permanent prospects open to her, our terms of reference have been borne constantly in mind.

ADAPTATION RATHER THAN RECONSTRUCTION.

2. We have confined our attention as far as possible to proposals which would involve adaptation rather than fundamental change in the system on which the nursing services of this country are at present carried on. For this reason we have not dealt except in outline at the end of the Report (see paras. 338 to 346) with certain issues affecting the internal organisation of the nursing profession. These include the establishment of schools of nursing in connexion with universities; the replacement of the present five registers by one register with supplementary diplomas; a substantial shortening of courses of training; and the official recognition of two grades of nurses. It would be difficult to predict the ultimate effect on recruitment for work in hospitals of any of these changes. In any case, a reconsideration of the whole basis of State registration only 12 years after its inception would be premature, at least until a real effort has been made to remove the causes which make work in hospitals no longer attractive to young women. Progress can, in our opinion, best be made by accepting the complicated system which was set up as a compromise between many interests, while recognising that the lack of eagerness on the part of girls from secondary schools to train as nurses shows that adjustments are needed unless the whole system is to break down. We have dealt chiefly with the adjustments required in the hospitals of the country taken as a whole, believing that the peculiar difficulties of certain types of hospitals will be met more easily when those common to nearly all hospitals have been recognised and, as far as possible, resolved. For this reason we have not devoted separate Sections to each of the groups of hospitals differentiated in Dr. Bradford Hill's analysis (Appendix xviii.). Most of our recommendations apply, in greater or less degree, to Children's hospitals, Fever hospitals, and Affiliated, Associated, and Reciprocal hospitals. This is also true of Tuberculosis and Mental hospitals, though these have been considered separately.

THE DEPENDENCE OF THE HOSPITALS ON STUDENT LABOUR.

3. To restore the popularity of nursing among educated girls has been the chief objective of our inquiries. The economic and the administrative difficulties of hospitals, the vocational ideals of some nurses and the professional aspirations of others, concern us only in so far as they promote or hinder our object of inducing enough educated girls to come forward to dispel anxiety about the nursing care of the sick in hospitals. We have had to devote close attention to conditions of training as well as of employment, because hospitals have long depended for their nursing service largely on students eager to learn. The ratio of the untrained to the trained staff is approximately 2 to 1 even if staff nurses are all counted as trained staff; thus, the fact that admission to a course in nursing is no longer keenly sought means not only the prospect of a shortage of nurses in the future, but an actual shortage of workers in hospitals to-day.

THE EFFECT OF SHORTAGE OF NURSES ON THE PATIENT.

4. Hitherto the patients have rarely been allowed to suffer. Deficiency in the quantity and quality of the candidates for nursing them has been met by imposing an increased strain on the members of the trained staff and on those who do come forward for training. But the time must come, and it has already come in some hospitals, when the patient

has to wait for attention, or is so conscious of the overwork of the nurses that he hesitates to ask for it; when the doctor's orders are carried out with less promptness and skill than they should be; and when anxiety to get the necessary work done obsesses the minds of the senior nurses to such an extent as to lead them to spur their juniors to get through their tasks quickly, while giving little teaching in the individual care of patients. In hospitals where acute shortage exists, new probationers may be flung into understaffed wards to take their part in the daily struggle against time. The wards have to be kept clean and tidy, and so many patients have to be washed and fed and settled, dressed or dosed, that the probationers are bewildered and discouraged; the patient feels that he gets little personal attention; and the trained staff complete the essential routine work only by sacrificing their own scanty leisure. It will hardly be possible to protect hospital patients from suffering from such a shortage unless it is remedied soon. It is an axiom in the nursing profession that the patient comes first, and throughout our work it has been the patient whose interests have been uppermost in our minds. It is useless to provide hospitals and doctors for the sick unless an adequate nursing service can be assured.

SAFEGUARDS AGAINST OVER-RECRUITMENT OF NURSES.

5. It would not, however, be justifiable to invite more probationers to take a nurse's training than the profession could absorb, merely in order to provide our hospitals with student labour. The number of apprentices must be kept within reasonable bounds, or eventually unemployment will result. The limitation by the General Nursing Councils of the hospitals approved as training centres to those which can provide adequate experience should prove a safeguard against this danger. As the value of training leading to State registration, as opposed to that leading only to a hospital certificate, becomes more generally understood by the public, non-approved hospitals will no longer enlist the services of students; these hospitals will then provide additional posts for nurses trained at the approved training schools. In this way the nursing profession will be safeguarded from overcrowding when the removal of misconceptions and prejudice, and the adjustment of conditions of training and service in the approved hospitals make it again a popular avenue of employment.

(To be continued.)

MEDICINE AND THE LAW.

Substantial Sentence on Bogus Doctor.

George Edward Williams, whose real name was given as Flaxman, pleaded guilty at the Central Criminal Court on Feb. 8th to charges which were outlined in THE LANCET of Jan. 23rd at p. 203. The accused had apparently had the courage to annex to himself the name and degrees of an existing medical practitioner resident in Wales. His medical experience, according to his counsel, consisted of his having been a steward in a hospital and of service in the ranks of the R.A.M.C. during the war. The gravest charge against him was that of having committed perjury on the trial of an action in the Clerkenwell county court where, posing as an expert medical witness, he had sworn that he had been in practice for 26 years, and that he possessed the qualifications M.D. (Cambridge), M.R.C.S., L.R.C.P., and D.P.H. A second charge concerned his unlawful possession of drugs within the Dangerous Drugs Acts; not being a registered medical practitioner, he had no authority under the Acts and Regulations to possess or supply such drugs. On each of these two charges he was sentenced to three years' penal servitude, sentences to run concurrently. On a third charge—making an untrue statement for the purpose of procuring a passport—no sentence was passed.

The case neatly illustrates facts of which the medical profession is aware and the general public is largely ignorant. The fine old preamble of an Act of Henry VIII. states that "the science and cunning of physic and surgery (to the perfect knowledge whereof be requisite both great learning and ripe experience) is daily within this Realm exercised by a great multitude of ignorant persons of whom the greater part have no manner of insight into the same . . . to the high displeasure of God, great infamy to the faculty, and the grievous hurt, damage, and destruction of many of the King's liege people, most especially of them that cannot discern between the cunning and the uncunning"—words which served as a type for the preamble to the Medical Act of 1858 which in simpler language recites that it is "expedient that persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners." The modern Statute is not concerned with the divine displeasure or with the great infamy to the faculty; but it does take note of the peril to the life and health of a patient where an untrained and unqualified man like Flaxman imposes upon the confidence of the sick and suffering. From the public point of view the true gravamen of the accusations against Flaxman is this fraudulent and dangerous posing as the possessor of expert qualifications. The law allows great latitude. Flaxman, though unregistered and unqualified, could, with a remarkable degree of impunity, administer almost any kind of medical treatment, and (as recent unsuccessful proceedings in R. *v.* Ensor indicated) call himself 'doctor' or allow himself to be so called. The one thing which the law forbids is his falsely representing himself to be a registered practitioner or to have certain medical qualifications. This offence Flaxman undoubtedly committed. Was he charged with it? No. Why not? Because the punishment is negligible. The following statutory table of maximum penalties for the offence of falsely representing oneself to be registered or duly qualified in various professions is instructive:—

Medical practitioner	£20 (21 & 22 Vict., c. 90, s. 40).
Veterinary surgeon	£20 (44 & 45 Vict., c. 62, s. 17).
Architect	£50 for first offence, £100 for any subsequent offence (21 & 22 Geo. 5, c. 33, s. 10).
Dentist	£100 (11 & 12 Geo. 5, c 21, s. 1).

It is more than twice as serious, therefore, to pretend to be a registered architect, and five times as serious to pretend to be a dentist, as it is to pretend to be a registered medical practitioner. The gross fraud of which Flaxman was guilty led him into certain consequential or subsidiary actions. Having once adopted the pose of being a duly-qualified practitioner, he was committed to consequences such as maintaining his pose in the witness-box or prescribing dangerous drugs. For these consequential actions he receives the substantial sentence of three years' penal servitude. For the cardinal and principal fraud, the source from which those actions flowed, the penalty is so trivial as not to be worth inflicting.

Stealing a Practitioner's Name.

Flaxman's case is the second instance within the past few months of an unqualified person assuming

the name of a practitioner whose name is on the Register. His case has been discussed in the preceding paragraph from the public point of view. A practitioner whose name is thus borrowed and abused has a personal grievance. Adventurers must somehow be discouraged and prevented from dipping at random into the pages of the Medical Register and annexing any name they fancy. Apart from other legal aspects, such conduct possibly discloses an offence against the Registration of Business Names Act, 1916. "Business" in that statute includes "profession," and "every individual having a place of business in the United Kingdom and carrying on business under a business name which does not consist of his true surname . . . shall be registered in the manner directed by this Act." The penalty for default in registration runs at the rate of £5 a day. The statute was a war-time enactment. It hardly seems an appropriate weapon against frauds such as Flaxman's, and there may be awkwardness in applying it. It creates, however, no difficulties for the honest practitioner or for bona-fide changes of name.

Hospital Death Due to Mistake in Medicine.

An unfortunate mistake in a local hospital led to the holding of an inquest at Dartford on Feb. 8th. Evidence was given that death was due to heart failure brought about by belladonna poisoning. It appeared that a probationer nurse, aged 17, had been given the key of the medicine chest for the purpose of administering aperients to patients. Unhappily a bottle containing a mixture of belladonna and glycerin was taken from the medicine chest instead of a bottle containing syrup of figs. It was stated that the medicine chest stood low down and was badly lighted. It should have been cleared out each week, but this had not been done for some time. It was the usual practice to keep the special drugs on one side of the chest, but there was no partition. Some bottles containing poison were blue; others had nothing to distinguish them. Neither the matron nor the sister in charge could explain how or when the belladonna bottle found its way into the medicine chest. The coroner observed that the evidence showed great want of care and supervision. The young nurse was hardly old enough to have charge of the administration of medicines, but the blame should not be laid on her shoulders alone. The bottles and labels should not have been used as they were, and the shape and size of the bottles should not have been similar. A verdict of "accidental death" was returned.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

EDINBURGH MUNICIPAL HOSPITALS AND THE TEACHING OF MEDICINE.

THE Edinburgh hospital scheme is moving forward. It is probable that the report of the joint committee representing the University and the Corporation will be approved of, and that an agreement will be entered into with the University on the lines of that report. The proviso is made that the agreement may be terminated or revised at the end of three years, and also that the sum to be paid to the University on account of services rendered by the part-time staff in respect of municipal hospitals shall not exceed £2000 per annum. A draft scheme is to be prepared and submitted to the Department of Health for Scotland for the reorganisation of the hospitals belonging to the Edinburgh corporation at Pilton, Craigheith, and Seafield, and this draft scheme will contain provisions for removing Craigheith and Seafield hospitals from the category of poor-law hospitals in so far as Edinburgh residents are concerned.

This important decision means that Craigheith and Seafield hospitals will now be converted into general hospitals under the health committee, and will be available for teaching. Pilton hospital is already in this position. The arrangement with the University is both for teaching and for treatment. To protect the Royal Infirmary and the other voluntary hospitals, as regards the part-time staff, the appointments should be made by the University and the corporation jointly.

The three institutions will be taken as constituting one hospital system. According to the town clerk's statement, four main units would be formed: (1) medical; (2) surgical; (3) obstetrical and gynæcological; (4) children. The staff of each unit would consist of a director, who would have the status of a full physician or surgeon; one assistant physician or surgeon, or more; and one clinical tutor or more. There would be the part-time officers under the joint appointment, and, in addition, full-time resident physicians and surgeons. The general administration of this hospital system would be under the control of the medical officer of health. The corporation will thus have at their command the best medical service which the city can produce, in the same way as the Royal Infirmary. The joint report by the University and the corporation recognises the advantages of this arrangement. Teaching ensures greater regularity and thoroughness of working. The provision of a staff composed of teachers increases confidence. The medical school benefits by the increased number of beds. The students will have the advantage of more clinical instruction in chronic illness. Clinical research will find abundant material of a kind not provided by the voluntary hospitals. The training of nurses will benefit by the better facilities. The pressure on the voluntary hospitals will be relieved.

As regards the new facilities for teaching and research, it is accepted that the students of the school of medicine of the Royal Colleges shall share the opportunities with those of the University. Thus the difficulty between the University and the extra-mural school has been solved.

THE REFORM OF MEDICAL EDUCATION.

Addressing the Edinburgh Medico-Sociological Club on Feb. 5th, Dr. Chalmers Watson pointed out that not a few prominent critics of modern education have condemned the prevailing tendency towards excessive specialisation in teaching, resulting in a failure to teach the essential fundamental principles. It is increasingly recognised, he said, that there is something inherently wrong with our present system of medical education. Students are systematically overtaught and overcrammed; they have no time to teach themselves, their training in clinical medicine is seriously inadequate. The curriculum is framed without adequate orientation to the later work of the practitioner. This defect is not due to lack of teachers. In the last 40 years the number of medical graduates in Edinburgh has lessened to the extent of 60 graduates, whereas the number of teachers has increased by 68, this taking no account of the increase in the clinical teaching staff.

In former days, said Dr. Watson, medicine and clinical medicine rightly constituted the "hub" of the medical curriculum; to-day it is hardly too much to say that they are subordinated to the

preliminary sciences and to the special branches. A very large amount of the work of the general practitioner is concerned with disorder of function unaccompanied by obvious disorder of structure. The present curriculum is much too largely concerned with the latter. Much more time must be made available to the student for his study of practical medicine. The strain on the mental and physical condition of the student towards the end of his third academic year is absurd; but a very small part of that strain is, however, directed to clinical work. A judiciously reorganised curriculum would allow attention to be paid to some vitally important subjects which at present receive very inadequate attention—e.g., nutrition, heredity, psychotherapy, physicotherapy, antenatal work, and preventive medicine.

Dr. Watson outlined a scheme of revision for the medical curriculum of the University of Edinburgh.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENT.)

CIVIL AND MILITARY MEDICAL COÖPERATION.

PARTLY as a result of the constitution of the Indian Medical Service, the army medical organisation in India, ever since the British connexion, has been intimately associated with civil work. Up to quite recent times it was the Indian Medical Service, almost exclusively, which ran not only the important hospitals, but also the medical colleges and schools, and a large proportion of the cadre was employed in this way. At the same time it was always understood that the army had the first claim, and at times of great military stress the bulk of that portion of the service which was employed in civil work reverted to the army. But conditions have changed in the course of Indianisation. Civil appointments have been curtailed, and the connexion between the civil and military branches is not so close as it used to be. Further, from time to time it has been urged by nationalist interests that civil medicine should be entirely divorced from military, and attacks are still made on the Indian Medical Service with this object in view. It is therefore interesting to note that, as a result of the present financial stringency, which has hit the recently extended Bombay hospitals particularly hard, influential Indians are now proposing that the army medical department should come to the rescue. Figures are quoted to show that, in times of peace, the military medical establishments are far in excess of requirements, and it is suggested that some part of them should be employed in the civil hospitals. As so often happens in cases of this kind, all the old arguments which tend to the opposite conclusion are forgotten, and when it is said that in 1931 the army had 12,743 beds at its disposal, and a personnel of 16,648 to look after them, the exponents of the new proposals seem to assume that nothing further remains to be discussed. The fact is of course that such figures include not only hospital attendants, but ambulance corps, and various other details who have nothing to do with actual hospital work; while the necessity of being prepared for military emergencies is entirely ignored. Many good authorities have thought that a close connexion between the military and civil hospitals and medical services serves the needs of India better than the entire divorce which has recently been advocated by both medical and lay nationalist enthusiasts. This association is still maintained, to some degree, through the medium of the Indian Medical Service, but with the contraction which has taken place within recent years it has greatly diminished, and to reverse the policy which has been persistently pursued on account of a temporary crisis hardly seems reasonable.

THE SOCIAL EVIL.

International collaboration with a view to checking the traffic in women and children was started about 30 years ago. The war against this traffic is now being extended to the east, under the auspices of the League of Nations, and various countries which are concerned, including India, have expressed their willingness to coöperate in preliminary inquiries. A committee consisting of three members, one American, one Swedish, and another a Pole, started work in October last. It is expected that about 18 months will be spent in visiting various eastern countries. This will no doubt strengthen the efforts already being made in some large Indian cities to deal with prostitution. In Bombay a Bill was passed last year to enable the police to close brothels. Owing to the civil disobedience movement, which threw a great strain on the authorities, action was delayed for some time, but an energetic campaign is now in operation. Measures were first taken to close the foreign houses. All were visited by the police, and the proprietors warned that unless they broke up their establishments by a certain date they would find themselves in jail. It is intended to carry out the same procedure with regard to Indian brothels later on. How far these measures will be successful remains to be seen. The police authorities at one time certainly doubted whether any legislation of the kind would do more than drive the evil underground. One good result, at all events, should be some safeguarding of British and foreign seamen in the port, and from the medical point of view anything which holds out a prospect of limiting the incidence of venereal diseases, which are so rampant throughout the East, is worthy of support.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

HUNTERIAN FESTIVAL.

AFTER the delivery of the Hunterian Oration (see p. 381) on Feb. 15th the President and Council held the Hunterian festival dinner in the library of the College. The company included:—

Members of Council.—Mr. R. P. Rowlands and Mr. Sampson Handley (Vice-Presidents), Sir Holburt Waring, Prof. E. W. Hey Groves, Sir Percy Sargent, Prof. G. E. Gask, Mr. McAdam Eccles, Sir Charles Gordon-Watson, Prof. A. H. Burgess, Mr. Warren Low, Mr. Victor Bonney, Prof. G. Grey Turner, Mr. Hugh Lett, Prof. Leonard Gamgee, Prof. R. E. Kelly, Prof. Graham Simpson, and Mr. A. J. Walton; with Sir Arthur Keith (Conservator of the Museum) and Mr. Forrest Cowell (Secretary).

Guests.—Sir Henry Betterton (Minister of Labour), Lord Atkin, the Dean of St. Paul's, Sir Gowland Hopkins, P.R.S., Dr. T. Watts Eden (President of the Royal Society of Medicine), Sir George Makins, Sir Farquhar Buzzard, Sir D'Arcy Power, Surgeon Vice-Admiral R. St. G. S. Bond, Sir Harold Fawcus, Sir William Bragg, F.R.S., Mr. Charles Lupton, Mr. C. Tate Regan, F.R.S., Prof. William Bulloch, F.R.S., Mr. R. H. Burne, F.R.S., Sir Frank Colyer, Sir Henry Dale, F.R.S., and Sir David Murray, R.A.

Lord MOYNIHAN, proposing the health of The Guests, said that the College was famous for its hospitality: its visceral aristocracy included parts of the two oldest inhabitants of Europe, the Piltdown and Gibraltar skulls; the most ancient mummy in existence; the heart of the Pharoah of the Oppression;

the bodies of a king and queen of Ur; a rib of Robert the Bruce; part of the "bowels that yearned" of Napoleon. Passing to its living guests, he welcomed especially Sir Hilton Young, who, as Minister of Health, was associated with one of the great adventures of medicine—the British Post-graduate Medical School; Sir Henry Wellcome, who had done more than any other living Englishman to advance research connected with medicine; and Sir Buckston Browne, to whose wisdom and foresight the College owed its research institute at Downe. Many great institutions died of dignity, some of rigidity. The College must not content itself with its old ideals of being an examining body with museum and library, but must ally itself as closely as possible with research.

The Duke of ATHOLL, in reply, described his experiences as a surgeon in the Sudan and at the hands of surgeons elsewhere. From earliest youth, he said, he had wanted to be a surgeon, and he was glad to be associated with the London Clinic and Nursing Home, which would, it was hoped, bring both medical and surgical skill within the reach of people of moderate means. He wished it to be understood that the Home was not a "tied house," since any consultant could attend patients there.—Sir HILTON YOUNG said that when he became Minister of Health he felt it his duty to give a conspicuous example of salubrity, but on shipboard had found it impossible to emulate all Lord Moynihan's hardy practices.

Lord DAWSON, proposing the health of the Hunterian Orator, emphasised the difficulties of giving praise to great men in their lifetime, as Mr. Trotter had suggested. Greatness was not always recognised; in 1872 even the Académie des Sciences refused to elect Charles Darwin because his theories were "a bad example which a body that respects itself cannot follow." Mr. Trotter, however, might at least be recognised as that rare thing, a master of thought and craft; a man with understanding of illness side by side with understanding of morbid processes; a man whose attitude foreshadowed the time when the artificial barriers between physician and surgeon would disappear; a man whose dislike of trappings and pursuit of truth made one say that the gods had called him.

Mr. WILFRED TROTTER, in thanking Lord Dawson, said that he stood there as a kind of surgical everyman and his own load of gratitude must be distributed to the surgical profession at large. He dated the rise of surgery from the time when the surgeon—hitherto bearing the same relation to the physician as the bricklayer's labourer bears to the architect—decided to have clean hands. To each of the professions the surgeon was indebted. The first successful amputation of the tongue was probably done under the auspices of the law. (As often happened, the operation was devised first and the proper use for it was discovered later.) From statesmen there was much to learn in the art of prognosis—the art of providing for the reconciliation of promise and fulfilment. The Services, too, had something to teach; for the science of strategy had been well defined as the discovery of design in things after the event. Could there be anything more valuable to surgeons in the not uncommon situation of explaining the successful operation to the bereaved? Finally, the Church had made its contributions to surgical art; but so far, said the Hunterian Orator in conclusion, he feared he had not acquired the clerical gift of being able to address the same congregation twice in one day.

PANEL AND CONTRACT PRACTICE

Dangerous Drugs Acts Restrictions.

IF the Home Office withdraws a panel practitioner's authority to possess and supply dangerous drugs, does he ipso facto cease to be in a position to comply with his Terms of Service? The question has never been answered definitely in terms of general application. Some months ago [1] the Minister of Health took the lenient view that a particular practitioner could still adequately conduct his panel practice if certain other non-prohibited dangerous drugs were substituted and if he could on necessary occasions arrange for the coöperation of a colleague who was under no such disability. Recently in a Liverpool case the Minister has adopted the opposite course; the Dangerous Drugs Acts disability was one of several grounds alleged by the insurance committee against the panel doctor, not all of which were found proved; the Minister has decided to remove the practitioner from the medical list of the insurance committee.

The material clauses in the Terms of Service are paragraphs 9 (8), 9 (9), 9 (10), and 11 (1). They oblige the practitioner to supply, where requisite, drugs necessarily and ordinarily administered by a practitioner in person and drugs required for immediate administration; they oblige him to supply all requisite drugs to patients whom the committee requires him to supply; they oblige him to order such drugs as are requisite for the treatment of any patient and to sign the order with his own hand; finally they insist that, subject to certain specified modifications of the rule, the practitioner must give all treatment personally. In the Liverpool case the insurance committee set out, among other matters, the allegations that the practitioner had been convicted at the City Police-court (Liverpool) of several offences against the Dangerous Drugs (Consolidated) Regulations and that the Home Secretary had withdrawn his authority as from March 18th, 1931, making it thenceforth impossible for the practitioner to give prescriptions for the purposes of those Regulations. There was a further allegation that after that date the practitoner failed to order or supply drugs to three specified patients as required by his Terms of Service. The facts of the conviction and the subsequent Home Office action could not be controverted. As regards the three named patients there was a dispute; the insurance committee's case as to two of the three broke down for want of evidence that the prohibited drugs had been necessary. The third patient had died in May, 1931; the practitioner produced a letter from the patient's son expressing appreciation of his father's medical treatment. The Inquiry Committee reports that between Oct. 30th, 1930, and Jan. 22nd, 1931, morphia grs. 76 had been prescribed for this patient; after Jan. 19th, 1931, no morphia was prescribed for him until Feb. 27th, and thereafter only minute quantities were prescribed. The tribunal had to say whether the Home Office action in cutting off the power to prescribe morphia for this patient would bring about a failure to order or supply drugs as required by the Terms of Service. The tribunal reports its inability to believe that, if the patient had been treated with morphia to the extent indicated by his prescriptions before Jan. 19th, 1931, he would not have been prejudiced by its sudden cessation. For this reason and "in all the

[1] See THE LANCET, 1931, ii., 209.

circumstances of the case, having in mind particularly the number of persons on the respondent's panel who appear to have required the administration of hypodermic injections of morphine," the Inquiry Committee reports that it is satisfied that the insurance committee's allegation on this point is made out—namely, that the Dangerous Drugs Acts disability placed the respondent in a position in which he could not comply with his Terms of Service.

The decisions of the Minister of Health in these cases of complaint against a panel practitioner are necessarily based upon the particular facts of each investigation rather than upon any general principle evolved by a series of recorded judgments. The cases naturally fall into groups according to the degree of culpability and the standardised penalties deemed appropriate. One case does not otherwise serve as a precedent for another, but the result in the Liverpool case gives a warning of what may be expected where similar facts are proved.

Anæsthetics in Panel Practice.

When the scheme for panel practice was drawn up, the ideal arrangement suggested and embodied in the Terms of Service was that a doctor should be able to call in a fellow practitioner to give an anæsthetic when wanted for an operation, payment to come out of the local fund as a first charge on the medical funds for all services. It was generally agreed between panel and insurance committees, and included in the local distribution scheme, that appropriate fees would be one guinea for a general anæsthetic and half a guinea for gas. No fee is paid for a local anæsthetic. The claim for the anæsthetic fee has to reach the insurance committee within seven days of the administration, giving particulars of the case, including the time taken for the operation, the anæsthetic used, and so forth. The insurance committee in turn sends the form to the panel committee for review. The practice of panel committees varies throughout the country; some refuse all anæsthetic payments on the assumption that such service is reciprocal. Others allow certain claims, but not where partners or assistants have acted as anæsthetist. The matter has been considered by the London Panel Committee on several occasions in the past year. In London where it has been the custom of the committee, except in very exceptional cases, to pass all claims, their number has increased largely, although many practitioners give anæsthetics for each other without making any claim. Investigation showed that over 50 per cent. of claims were made by partners or by principal and assistant, and further examination suggested that a number of the cases might have been operated upon with a local anæsthetic without fee. For this and even more cogent reasons, the committee passed a resolution that they wished anæsthetics to be included in the general services without special payment. As this involved altering the Terms of Service for the whole country, a second resolution was passed asking the London Insurance Committee to agree to the alteration of the local distribution scheme whereby all anæsthetics should be paid for at a nominal fee of one shilling until such time as the Ministry of Health agreed to incorporate anæsthetics in the general services obligatory on all panel doctors. It will be interesting to see the effect of this alteration if sanctioned by the Ministry.

Excessive Prescribing.

From time to time panel practitioners receive from their insurance committee, through the pricing bureau, two sets of figures showing for each doctor, and for all doctors in the area, (1) the average number of prescriptions issued per person on list; (2) the average cost per prescription issued; and (3) the average total cost per insured person on list. If there is marked discrepancy between the individual figures and the average for the area, the Ministry of Health instructs a regional medical officer (often accompanied by a member of the panel committee) to call on the practitioner and ask for his explanation of the excess—for there is no case on record of an explanation being asked for the cost being below the areal average. If he gives a satisfactory explanation, for example, a diabetic case requiring insulin, or a bad case of cancer requiring many dressings, the matter there ends. But if the explanation is not thought satisfactory, the Ministry refers the prescriptions to the panel committee for investigation. The practitioner is invited to attend and the committee goes through the prescriptions in detail, looking out for the exceptionally costly preparations. The practitioner is asked to explain his method of prescribing, and to account for his costs being so much above that of his colleagues in the area. The difference in cost between what has been ordered and what might reasonably be considered suitable for such treatment is the cost that the panel committee will report to the Ministry, to the practitioner, and to the insurance committee, as the excess that the practitioner has imposed on the drug fund over and above the reasonable treatment of his patients. Local conditions and epidemics are taken into consideration as well as the age factor of patients. Both Minister and practitioner have the right to appeal to a court of medical referees appointed by the Minister, if either is dissatisfied with the finding. A Birmingham doctor was in December last found to have imposed £10 upon the drug fund in excess of what was reasonably necessary for the treatment of his patients. The excess was largely due to the prescribing of Brompton lozenges. He did not appeal against the surcharge.

Hypodermic Syringes for Asthma.

The regulations enjoin every practitioner on the panel to provide all proper and sufficient drugs for the treatment of his patients, but he may only order such appliances as appear in an authorised schedule. In these straitened times the authorities are unlikely to increase the size of this schedule unless it can be shown that hardship would result to patients through failure so to do. From several quarters has come a request to include hypodermic syringes for the self-treatment of asthma with suprarenal extract, as on a par with the supply of syringes already granted in the case of insulin for diabetes. No doubt the case for insulin was stronger as it can only be given hypodermically and life may depend on the proper dose at the proper time. But there is many an asthmatic patient who must pass hours of torture if a hypodermic syringe is not accessible; at present the patient must pay for it himself, it does not come out of the drug fund. The only difference it makes to the doctor is that if he orders the syringe on a panel prescription form, he is surcharged by the insurance committee through its pricing bureau and he may have difficulty in getting the cost back from his patient. It makes no difference to the approved society beyond the possible fact that in a case of hardship the society may agree to defray the cost of the syringe if it were shown that the patient was unable to afford it. Societies have funds available for other surgical appliances, trusses, and the like. But we think there is sound sense in being considerate to the asthmatic patient in this matter.

CORRESPONDENCE

B C G VACCINE.

To the Editor of THE LANCET.

SIR,—All your readers will share in the feelings of sympathy with Prof. Deycke expressed in your leading article last week (p. 353). His terrible sentence, incurred in all probability through the error of a subordinate, forms a tragic culmination to a brilliant career spent in the service of humanity. The article however expresses no sympathy with Dr. Calmette; and yet he too has suffered, through the Lübeck disaster, what must have been a period of mental torture during the trial and, even now after an official vindication, the sort of distress which no man of his generous nature can avoid in contemplating so much sorrow and loss associated, through no fault of his own, with his great experiment. For a very great and daring experiment, that of Calmette in connexion with B C G, has been an experiment demanding faith and courage as well as enormous personal effort and drive. Great energy was needed to organise the production, standardisation, and distribution in vast quantities of a vaccine which has already been used for hundreds of thousands of children all over the world; to say nothing of the attempt to correlate and analyse the results reported by countless medical men, some capable and critical, some wild and enthusiastic, some hostile and prejudiced, but all requiring the individual attention of Dr. Calmette.

It is very difficult to control such an experiment, and the results so far recorded, while amounting to a vast array of figures, do not appear to satisfy the statistical mind. Yet the issue at stake is of sufficient importance to justify something more dynamic, on the part of British medical science, than the policy of "festina lente" which, as your article says, may sometimes be wisdom. Eleven years have passed since Calmette first attempted, on the grounds of numerous animal experiments, the daring step of putting his vaccine to the only crucial test, the inoculation of human infants against tuberculosis. So long ago as 1927, Prof. M. Greenwood expressed doubt as to the adequacy of the statistical value of the evidence adduced by Calmette to establish the immunising efficiency of B C G; but 'the figures, if not conclusive in favour of the vaccine, seem at least to have proved that it was innocuous. This point may now be regarded as settled by the admirable animal experiments of Dr. A. Stanley Griffith set forth in your last two numbers. I myself, after similar experiments on a smaller scale, and after a visit to Calmette's laboratory, felt so secure on this subject of safety that I advised my colleagues in Wales to try B C G in cases where infants were born of tuberculous parents. It may be added that, through the kind help of Dr. Calmette in sending his vaccine, a dozen infants have been so treated in and around Cardiff without untoward result and, so far, without the development of tuberculosis, although living in most cases with infected persons. It is not easy to find opportunities to use the vaccine, and our results have as yet no statistical value either way, beyond adding to the evidence in favour of the innocuity of B C G. "This," as your article puts it, "is the crux of the matter."

My study of the subject leads me to refer for a moment to the three questions posed in your leading article. Let us consider (1) whether the administration of a living but non-virulent strain protects in a way which a vaccine of dead organisms cannot? It seems to me that the bacteriological evidence favours this view, although the matter cannot be regarded as finally settled. It can perhaps only be settled, for man, by experiments on man.

This latter consideration gives point to the second question (2) whether the risks inherent in the use of living-culture vaccines cannot be guarded against with reasonable precautions in a well-organised laboratory? The answer to this question is given in the affirmative by the fact that B C G, distributed to many thousands of infants from the Pasteur Institute, has been used without bringing that Institute into discredit. My advice would be that those intending to try B C G should obtain their supplied from the Pasteur Institute rather than attempt, like Prof. Deycke, to have the vaccine made up locally.

Your third question, then, needs to be redrafted as follows: (3) Whether the dangers of tuberculosis in infancy are so great as to render the attempt at preventive inoculation advisable? At this point I must, in respect of the general population of these islands, part company from the views held, for France, by Calmette. I do not consider that there is any justification here for universal anti-tuberculosis vaccination of the children of healthy parents living in uninfected homes. Their risk is too small to necessitate such a step and their inclusion in an experiment could only lead to confusion. Nor, in view of the results of tuberculin tests in healthy persons, do I expect success from antituberculous inoculation in the prevention of adult phthisis. In the case of infants born into infected households, however, the risk of infection is very great, and the question of B C G inoculation does arise. My own inquiries lead me to think that fully half the tuberculosis of childhood and adolescence in England and Wales occurs in those who have been exposed to infection in their homes. The observations of Dr. Lissant Cox in Lancashire point strongly to the conclusion that infants and young children in infected families contribute an undue proportion to the tuberculosis incidence in the child population there. It is my opinion that the campaign against tuberculosis ought to be concentrated especially on tuberculous families, and that in this campaign the anti-tuberculosis vaccination of infants might play a useful part.

It may well be that a carefully controlled experiment, designed on lines acceptable to medical statisticians as well as the bacteriologists and clinicians concerned, and confined to the infants born to tuberculous parents, might give us the conclusively favourable results which are still required to ensure the wide employment of B C G in this country.

I am, Sir, yours faithfully,

S. LYLE CUMMINS.

Tuberculosis Department, Medical School, Cardiff,
Feb. 15th, 1932.

PREVENTIVE INOCULATION AGAINST TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—It does not seem to me that any reasonable person can think the B C G method a desirable way to immunise human beings against tuberculosis. It is beset with the dangers always associated with a method of immunisation with a living antigen which

always causes the death of some abnormally susceptible individuals. The anticipated dangers of B C G have been amply demonstrated. Further, the history of the last three animals, cited by Dr. Griffith, which were exposed to natural infection should be a sufficient demonstration of the ineffectiveness of B C G. May I re-state the problem. Everyone who has attained adult years has been infected by the tubercle bacillus, but only a minority become diseased, because their resistance is not normal. If a normal immunity mechanism to the tubercle bacillus could be assured then tuberculosis would disappear. This can easily be achieved by a dead antigen. It is absolutely unnecessary to produce an immunity to withstand such an assaulting infection as the infection of millions of virulent bacilli as is done in the laboratory. Such infections do not occur in nature.

I am, Sir, yours faithfully,

W. M. CROFTON.

University College, Dublin, Feb. 13th, 1932.

THE MECHANISM OF TUMOUR FORMATION.

To the Editor of THE LANCET.

SIR,—There are two clinical facts which may shed additional light on the interesting suggestions made by Mr. J. J. M. Shaw in his valuable paper on the Ætiology of Carcinoma.

(1) There are many patients with sallow, toxic faces and skin suggesting an anæmic state, but whose blood count is normal. These people's whole complexion and cutaneous state can be completely changed by permanganate lavage of the colon. This suggests that skin deficiency is related to intestinal toxæmia, and probably faulty intestinal absorption of essential biochemical elements. In this connexion his remarks about calcium and potassium are particularly interesting.

(2) These sallow skins, coated with sebaceous lipoid and other secretions, can be made to assume a temporary healthy appearance by pyretic treatment, or exercise hard enough to produce sweating. If treatment is prolonged this may become permanent. Analysis of the sweat will usually reveal a pH of about 6·6, which is more acid than the average. Also there is much lactic acid in the sweat.

A connexion between faulty skin and intestinal function and the genesis of epithelioma would appear to be a reasonable conclusion. The prophylaxis of this condition would then be the rectification of such faults of function and elimination.

I am, Sir, yours faithfully,

Portland-place, W., Feb. 11th, 1932. H. W. HALES.

REFERRED PAIN.

To the Editor of THE LANCET.

SIR,—The interesting inquiry into referred pain by Prof. H. H. Woollard, Mr. J. E. H. Roberts, and Dr. E. A. Carmichael, published in your issue of Feb. 13th (p. 337), calls for some comment. The discrepancy between the results of their experiments and some observations of mine[1] to which they refer appears to me to be due to certain differences between the methods we employed. Whereas they stimulated by compression the exposed trunk of the phrenic nerve in the neck, I stimulated the sensory terminals of the phrenic nerve on the under surface of the diaphragm in two patients with perforated duodenal ulcer and right shoulder-tip pain on whom I operated under spinal anæsthesia. Probably of more moment, however, than the difference between the methods of stimulation was the difference in the extent of subcutaneous anæsthesia induced. In the case they describe in detail as typical of nine experiments the authors infiltrated subcutaneously with novocain and adrenalin "an area about the size of a shilling internal to the acromio-clavicular joint," and found, on again lightly pinching the phrenic nerve, that there was merely a slight shifting of the area to which the pain was referred.

I should be very surprised if they had obtained any perceptible modification of the referred pain by so limited an anæsthesia. In my two patients I anæsthetised subcutaneously the whole area supplied by cutaneous nerves from the third, fourth, and fifth cervical segments. It should be noted that the *spontaneous* right shoulder-tip pain was abolished in one of my patients by this procedure, but was only modified in the other. The shoulder-tip pain *induced* by stimulating the under surface of the diaphragm with a swab was not abolished in either of my patients, but was greatly modified, as was shown by the much greater pain felt on a similar stimulation of the left side of the diaphragm. (The left shoulder-tip area was not anæsthetised.) I attributed my failure to obtain complete abolition of the referred pain in the shoulder to incomplete blocking of the third, fourth, and fifth descending cervical nerves. I should attribute the negative results of the experiments described by your contributors to the more limited area of subcutaneous anæsthesia that they employed.

These nerve-blocking experiments, however interesting and important though they are, form no essential part of the evidence for peritoneo-cutaneous radiation of pain. That process is made evident by the fact, as to which there is no dispute, that when the sensory fibres of the phrenic nerve are stimulated, the pain is referred *entirely* to the distribution of the third, fourth, and fifth cervical nerves in the shoulder-tip area, and is not appreciated by the sensorium as arising in the diaphragm.

I cannot refrain from expressing some astonishment at the first of the conclusions in the article to which I refer. The authors state that "the diaphragm behaves as a viscus, since light compression of the phrenic nerve occasions no sensation referable to its anatomical site." Surely it is characteristic of the abdominal viscera, as of the heart and lungs, that mechanical stimulation such as pinching when applied to them direct evokes no sensation of pain at all! The diaphragm, on the other hand, by reason of its somatic sensory innervation from the phrenic nerve, is exquisitely sensitive to mechanical stimulation.

It is, indeed, an arresting observation that stimulation of the sensory fibres of the phrenic nerve causes no pain to be felt in the diaphragm, but only causes pain in its metameric cutaneous nerve distribution. But it is not a new observation. And to say that the diaphragm in this respect "behaves as a viscus" betrays an obsession with the truth of Mackenzie's theory of a viscero-sensory reflex that one would hardly expect of such distinguished investigators. I venture to suggest that their experiments will merely focus attention once more on the profoundly important process of peritoneo-cutaneous (and pleuro-cutaneous) radiation of pain. We are only beginning to understand the nerve mechanism involved in that process, but I am sure that the phrenic nerve will prove to be the key to a proper understanding of the mechanism of referred abdominal pain in general.

[1] THE LANCET, 1929, ii., 1240; and Abdominal Pain, 1931.

Your contributors suggest that the nerve-blocking experiments of Lemaire and of Weiss and Davis, if confirmed, would render still more insecure the theory of referred pain which is generally accepted. They do not make clear the fact that Lemaire and Weiss and Davis all believed that their experiments supported Mackenzie's theory. I have dealt with that belief in my book, and will not repeat the argument here.

Finally, if your contributors have knowledge of any sound experimental or clinical evidence in favour of Mackenzie's theory of a viscero-sensory reflex, I would most earnestly ask them to make it public.

I am, Sir, yours faithfully,

Manchester, Feb. 14th, 1932. JOHN MORLEY.

CARDIOVASCULAR EFFICIENCY IN RHEUMATIC CHILDREN.

To the Editor of THE LANCET.

SIR,—Many clinicians will be grateful to Wing Commander Treadgold and Squadron Leader Burton for their work, published in your issue of Feb. 6th (p. 277), on the size of the heart in relation to cardiovascular efficiency. This work has been confined, I gather, mainly to healthy, or presumably healthy, young adults. During the last four years I have carried out a series of similar tests in a large number of children attending a rheumatism supervisory centre. The original details were given in a paper read to the children's section of the Royal Society of Medicine in Feb., 1929, and are also published in the report of the school medical officer for the County of London for that year.

In children the first problem is to determine what the size of the heart should be. Where there is a gross enlargement, as in the cases of old adherent pericarditis, or severe valvular disease and the cardiac impulse is very forcible, no difficulty is experienced. But in those vital early cases I find it impossible to say now, after a careful examination of some 3000 cases, where the apex-beat should be at any given age. I place very little value on percussion of the right side of the heart in children, except for very considerable changes. In a series of 243 cases examined for pulse changes it was found that :—

45	had a recumbent	pulse-rate	between	70–80
67	"	"	"	80–90
78	"	"	"	90–100
63	"	"	over	100

whilst the standing pulse-rate of this group was :—

17	between	70–80	76	between	90–100
52	"	80–90	100	were over	100

In a group of 187 cases, whose cardiac efficiency was estimated by the methods previously mentioned, the number rated below—

0	was 6	4	was 13	8	was 13
1	" 3	5	" 10	9	" 21
2	" 3	6	" 9	10	" 29
3	" 7	7	" 8	over 10	" 65

The number whose critical figure was 13 or over was 70, and this corresponds to the number of "heart" cases, 77, in the series.

The point I am trying to make is that in spite of adverse criticism the use of cardiac efficiency tests, *together* (and this is vital) with clinical signs and symptoms, affords a valuable means of assessing the progress of a cardiac case. The test has the fallacy of all numerical measures, but it has the merit of simplicity, and of being able to be performed without special apparatus in the consulting room or bedside.

In another series of 208 cases analysed and divided into three groups :—

(*A*) 108 cases with definite evidence of carditis.
(*B*) 22 " " cardiac irritability, but no carditis.
(*C*) History of rheumatism, but no cardiac disease.

The following findings emerged :—

Resting pulse-rate.	*A.* (*a*) Active.	*A.* (*b*) Healed.	*B.*	*C.*
Over 100	46	81	40	80
Under 100	54	19	60	20

Definite cases.	Over 8.	Under 8.
Active	27	73
Inactive	75	25
Group *B*	40	60
Group *C*	80	20

The effect of exercise on the pulse-rate was :—

	Active.	Healed.	*B.*	*C.*
Increase in pulse-rate under 30	53	28	56	78
" " " over 30	47	72	44	22
Return to standing pulse-rate in 120 sec.	28	18	30	17
Pulse-rate raises after 120	21	11	15	6

We have also found that the temperature of children attending the clinic is as often 99·2° F. as under this figure—and we have come to regard a temperature of 99°, unassociated with any of the usual signs and symptoms of rheumatic fever, as being normal under conditions of examination. We have found that these emotional children have unstable temperatures; it is of course well recognised that rheumatic and choreic children are often of the emotional type.

In our series the blood pressures have all been taken. A very usual systolic blood pressure is 105, while the diastolic average is 65. In the severer cases of mitral disease we have had pressures of 135 recorded, with corresponding rises of diastolic reading.

The cases which have given us the greatest anxiety have been the simple tachycardias with a mild fever. I find that it is clinically impossible to separate these cases from rheumatic myocarditis, and I hold that it is my duty to treat them as such for a period of, say, four to six months. If, at the end of this time, their condition is unaltered, and their electrocardiogram negative, the choice must be made between valetudinarianism and the neglect of what may turn out to be a serious cardiac lesion. I mention these cases, because unfortunately this is one of the groups where cardiac efficiency tests may fail—and often do. By tachycardia I mean a pulse-rate of 105 or over in a child of 10, which runs up to 140 or more on exertion.

I am familiar with Sutherland's and Schlesinger's work on the variation of pulse in the waking and sleeping child, and it may be that this method may be of service in helping us to estimate the activity of the cardiac lesion. I must say that the determination of cardiac efficiency, and the presence or absence of active carditis seems to me to be one of the most urgent problems in clinical medicine, and I think it is one which may be solved eventually by the simple cardiac methods described by Wing Commander Treadgold and Squadron Leader Burton.

I am, Sir, yours faithfully,

Harley-street, W., Feb. 12th, 1932. GERALD SLOT.

X RAY DOSAGE IN MALIGNANT DISEASE.

To the Editor of THE LANCET.

SIR,—In your issue of Jan. 31st (p. 254) reference is made to a discussion on this subject which took place at the Section of Radiology of the Royal Society of Medicine on Jan. 15th. If I may be permitted to criticise your annotation, it seems to me that too much stress is laid in it on the alleged opposition

between a school advocating small doses and another pinning its faith to intensive treatment. So far as I was myself concerned, while I pointed to the undoubted effects which can be produced by doses which may be described as not only relatively but absolutely small—in that they are near the point when demonstrable effects no longer occur—I was concerned rather with an attempt to lay down principles than to deal with the exact size of doses.

A great deal of recent writing on the subject is concerned with getting this or that amount of radiation, a greater or less number of erythema doses, "into the tumour," as the phasing goes. The underlying idea still seems to be that of the "lethal dose," although it is admitted that, even with the most intense applications, there is no certainty of killing every cancer cell. It seems to be held by this school that any future increase of voltage, by enabling a relatively greater amount of radiation to be delivered within the tumour, will necessarily improve results. It is my belief that the tissue reactions which are excited by X rays are of no less importance than their direct depressant effects upon malignant cells. And it is as certain as anything can be that, at any rate in the hands of some of its advocates, a single course of intensive treatment results in permanent damage to previously healthy tissues in the neighbourhood of the growth. The reaction may in rare instances accomplish the eradication of all cancer cells before the reacting tissues settle down into a permanently enfeebled state, from which further X ray treatment cannot raise them. In certain desperate cases such "forlorn hope" methods may therefore be justified. But to advocate similar dosage as a routine cannot be right.

In the course of my paper I made the following statement:—

"With the exact details of dosage in various malignant conditions I am not here concerned. What I am contending for is the recognition of certain fundamental truths: that radiations act chiefly as agents for stimulating the resisting powers of the body; that it is impossible by any practicable radiation dosage to ensure in a few days or weeks the death of all cancer cells; and that methods of treatment which aim at conserving tissue response are alone sound in principle."

By "small doses" are usually understood such as were given twenty or more years ago. They produced results, but I never made any suggestion that we should adopt them as a standard. I am prepared to believe that the best dosage may be nearer to that of the big dose school of to-day than to that commonly used in the second decade of this century. What I am not prepared to believe is that the principle of the *therapia sterilisans magna*, which has failed signally in other branches of medicine, can be successfully applied in the X ray treatment of cancer.—I am, Sir, yours faithfully,

F. HERNAMAN-JOHNSON.

Brook-street, Grosvenor-square, W., Feb. 10th, 1932

BRILLIANT GREEN FOR SYCOSIS.

To the Editor of THE LANCET.

SIR,—Dr. Garrod has had the great courtesy to send me his interesting and valuable paper on the "Chemical Prophylaxis of the Streptococcal Infections." His and Prof. Senin's technical conclusions will be accepted with gratitude by all thinking men. Lately my work has been chiefly directed to calling attention to the fundamentals which govern the effective activities of irritants upon the skin. Incidentally micro-organisms come into the picture. The suitability and convenience of the means used for their control should apply equally to the investigator as to the clinician.

Alcohol is cleanly and mildly antiseptic; frequent applications of it are harmless to the skin but inimical to bacteria. Upon protein the primary physical effects of alcohol, iodine, picric acid, tannic acid, &c. are similar, but they vary in degree and some have greater powers of penetration. Their first effect is what is called astringent, which is another name for flocculation of the superficial tissues. The sum of these effects makes these medicaments suitable for different stages in the many varieties of skin troubles. A knowledge of these factors is essential to the dermatologist if he is to apply remedies successfully. It would have been very helpful if Dr. Garrod had elaborated this aspect of the subject, when dealing with the numerous germicides mentioned in his paper.

Reverting to the chief theme of my letter, which was the cure of the superficial folliculites, coccigenic sycosis in particular (and in this connexion I use the word "cure" intentionally), neither a tendency to lean upon tradition, nor fashion as Dr. Garrod says is common, in his original article, nor yet a slothful attitude in accepting new ideas, is one of my many failings. May I point out to him that he has experimented with surgical spirit, which is alcohol diluted 1 in 5 of water. I use and advise pure alcohol, a very different proposition. Alcohol is not the only ingredient and the other details of the treatment must be fulfilled. Whether his patients are likely to prefer a speedy and not unsightly mode of treatment to one which at least produces an apparently alarming and certainly disagreeable appearance, I leave to Dr. Garrod's discretion to decide.

I am, Sir, yours faithfully,

Wigan, Feb. 12th, 1932. R. PROSSER WHITE.

VENESECTION IN HEAT-STROKE.

To the Editor of THE LANCET.

SIR,—The annotation on Heat-stroke in your last issue (p. 358) recalled to my memory a case I had many years ago when I was surgeon to the R.M.S. *Orizaba*, Orient Line, on a voyage from England to Australia. When passing through the Red Sea I was called to see a steerage passenger. I found a stout, middle-aged Irish woman with consciousness completely lost, flushed face, skin very dry and hot, stertorous breathing—temperature between 108° and 109° F. I tried every remedy I knew of and found recommended, but it was all in vain, so at last I decided to try venesection and truly the result was wonderful. Within a short time the patient was conscious and next day the temperature was nearly normal. It is a pity venesection is not more practised.

I am, Sir, yours faithfully,

J. JOHNSTONE REDMOND.

Elm Park-gardens, S.W., Feb. 15th, 1932.

PANEL HEATING OF HOSPITALS.—The new Benito Mussolini Tuberculosis Hospital in Rome which it is expected will be opened about the middle of next year, is to be warmed on the British panel system. The hospital will contain nine wards with 2500 beds, and will thus be one of the largest institutions of its kind. The system has been adopted on the recommendation of a committee of investigation which examined the system as installed at St. Bartholomew's and University College Hospitals and the Harrow Hospital memorial extension. Dr. Eugenio Morelli, the director of the hospital, afterwards tested it at one of the smaller institutions under his charge, and found that it worked perfectly in a room with open windows and is thus especially suited for sanatoriums.

THE SERVICES

ROYAL ARMY MEDICAL CORPS.

Lt. (on prob.) H. V. Tighe resigns his commn.

C. W. A. Kimbell is granted a temp. commn. in the rank of Lt.

ARMY RESERVE OF OFFICERS.

Capt. N. H. Smith, from Supp. Res. of Off., to be Capt.

TERRITORIAL ARMY.

Lts. R. I. Poston and W. F. Mulvey to be Capts.

INDIAN MEDICAL SERVICE.

The undermentioned appts. are made:—To be Capts. (on prob.): Capt. R. A. Wesson, W. Happer, and J. J. Quinlan. To be Lts. (on prob.): R. J. Jarvie, F. A. B. Sheppard, P. E. Sweeney, M. Sendak, and W. A. N. Marrow.

ROYAL AIR FORCE.

R. L. Raymond is granted a short service commission as a Flying Officer for three years on the active list.

ROYAL AIR FORCE RESERVE.

The undermentioned Flying Officers are promoted to the rank of Flight Lt.: W. J. Hutchinson, D. Magrath, W. A. Beck, and M. D. Rawkins.

DEATHS IN THE SERVICES.

Lt.-Col. Charles George Spencer, late R.A.M.C., died at Queen Alexandra Military Hospital on Feb. 8th, aged 63. A graduate of the University of London, he joined the medical department of the Army as Lt. in 1893, and served in the Ashanti Expedition of 1895–96 (Star) and in China in 1900 (medal). In 1905, when he had reached the rank of Major, he became professor of military surgery at the Royal Army Medical College, a post which he held till 1910. He retired from the service three years later, but was recalled to the active list on the outbreak of war in 1914. Lt.-Col. Spencer was the author of Gunshot Wounds, a book, published in 1908, which showed keen observation and care, and which has been found useful by the civil practitioner as well as the military officer. He also contributed to Choyce's System of Surgery and to Latham and English's System of Treatment, and made some useful communications to the medical press.

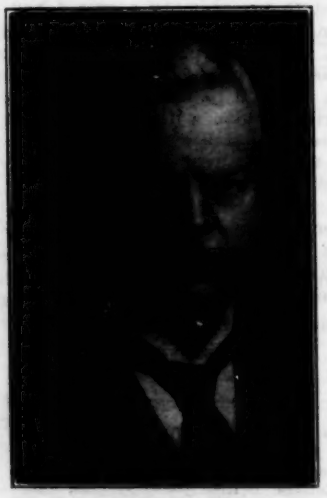
Dr. A. F. H. Stewart, M.O., St. Vincent, has been appointed Government M.O., Trinidad.

OBITUARY

WILLIAM BILLINGTON, M.S. Lond., Ch.M. Birm., F.R.C.S. Eng.

THE Birmingham School and the Queen's Hospital in particular has suffered another severe blow in the death on Feb. 7th of Mr. William Billington, professor of surgery in the University and senior surgeon to the hospital. He had been in failing health for several months past, but in spite of increasing disability he carried on his work courageously almost to the last.

William Billington was born at Sandbach, Cheshire, in 1876, was educated at the grammar school there and then at Wellington (now Wrekin) College, Salop, where he became head of the school and secretary to its master and founder, Sir John Bayley. He began his medical study with a scholarship at Mason College, where he gained numerous distinctions including that of Ingleby scholar in gynæcology. In 1899 he graduated M.B. Lond., with first-class honours and the Gold Medal in gynæcology. After serving as house physician to Dr. Arthur Foxwell, he was then in succession house surgeon to Prof. Jordan Lloyd at the Queen's, and resident pathologist at the General Hospital. In 1902, after some post-graduate study in London and taking higher surgical diplomas, he was appointed surgeon to out-patients at the Queen's, becoming full surgeon in 1913. In the following year he joined the staff of the 1st Southern General Hospital, with charge of the centre for jaw and facial injuries. Here, in coöperation with his dental colleagues, Mr. Harold Round and Mr. A. H. Parrott, he did much bone-grafting of the lower jaw and facial repair, original work which was not only of value to wounded soldiers, but has proved equally beneficial in civilian practice.



PROF. BILLINGTON.

[Photograph by H. J. Whitlock.

Mr. Billington was largely instrumental in founding, in 1913, St. Chad's Hospital, the first institution of the kind in the country, to provide expert medical and surgical treatment and skilled nursing for the large class of patients who cannot afford high fees and yet do not wish to go into the public hospitals. Practical experience there convinced him that with proper organisation paying hospitals can be made a success and satisfy consultant, practitioner, and patient. He devoted much time and thought to hospital administration. As chairman of the medical committee of the Queen's Hospital, he took a leading part in its extension, and in raising the necessary funds. He worked untiringly and unselfishly in support of the proposed University hospital centre.

In 1924 came his appointment to the University chair of surgery. He had long been known as a clear convincing speaker—in 1911 he had delivered a series of addresses on surgical topics in the United States of America—and as an able and lucid teacher of students. He was popular with his classes, and a pillar of strength in the medical school. As a surgeon he was cool and dexterous; his technique was neat with a scrupulous regard for detail. He had made a special study of movable kidney and devised a new method of renal fixation. He had also a large experience of chronic ulcer of the body of the stomach for which he advocated a trial of double gastro-enterostomy combined with entero-enterostomy. As a colleague he was helpful in advising and guiding his juniors. Outside the hospital he had a large consulting practice which left him little leisure for other pursuits, but he loved the country and enjoyed an occasional day's shooting or fishing.

In 1906 Mr. Billington married Miss Winifred Cooke, of Edgbaston. Their daughter and two of three sons are studying for the medical profession.

PUBLIC HEALTH SERVICES

LONDON COUNTY COUNCIL.

ANNUAL REPORT OF THE MEDICAL OFFICER OF HEALTH FOR 1930.

(*Concluded from p. 162.*)

EX-POOR-LAW HOSPITALS.

At the end of 1930 the general hospital service comprised 27 acute hospitals, 13 hospitals and institutions for the chronic sick, 2 convalescent hospitals, and 2 colonies for sane epileptics. The acute hospitals suffer from noisy surroundings, insufficiency of isolation wards, and lack of means for the classification of patients. Ultimately some will have to be replaced by more modern buildings. In the past some of these ex-poor-law hospitals have been overcrowded at a time when others had empty beds, owing to the legal obligation to provide treatment without delay for destitute persons. These hospitals could not, like voluntary hospitals, select their patients and close their doors when their beds were full, there has not been convalescent accommodation available for them, and the bed space per patient was generally too low. The demand for hospital accommodation increases, and will increase more rapidly, now that the pauper restriction has been removed. There have also to be considered the need for more adequate provision for the so-called middle class, and the large increase in street casualties in recent years. Sir F. Menzies pays a tribute to the splendid work done by these poor-law hospitals, although there was much variation in the policy pursued by the various boards of guardians. The problem now, put quite briefly, he says, is to find the best scheme for the prevention and treatment of disease of the people of London. The classification of the many types of patients is a big task. For example, some require dormitories, day-rooms, and work-places; others dormitories and dining-rooms; some must have their meals in the wards, and there are sick children, maternity patients, and the blind and mental patients to be considered. At the time of writing the report a comprehensive survey (outlined in a previous article) was in progress in order to evolve a scheme for the better utilisation of the accommodation.

DISTRICT MEDICAL SERVICES.

These have been continued as before, pending review and consideration of the best system. There are 126 medical relief districts in the county, and 108 of the district medical officers are part-time practitioners under no medical supervision except in Hackney, where the eight medical officers act under the supervision of the medical superintendent of the hospital. In the remaining 18 districts, the district medical officer is a whole-time official acting under the supervision of the medical superintendent of the hospital, and usually also a medical officer of the hospital. In most of these ex-poor-law hospitals an out-patient department has arisen to deal with casualties, after-care of former in-patients, and provision of antenatal and postnatal care for maternity cases. For instance, out of 29 hospitals, 27 provide for casualties, 24 for the after-care of former in-patients, and 20 have antenatal clinics. It is suggested that in the future the scope of these out-patient departments will be extended.

MATERNITY AND INFANCY.

The quality of maternity accommodation in the transferred general hospitals varies from a fully equipped maternity block with 36 beds and 3 labour wards to quite primitive conditions. The wards at one hospital have been closed, and all maternity wards are being surveyed with a view to gradual improvement. The demand for maternity beds is increasing. The response from the patients to the establishment of antenatal clinics is remarkable, and these clinics have the advantage of being under the same roof as X ray and other departments. Before transfer, obstetrical consultants had been appointed to 9 of the hospitals, and the extension of this provision is being considered as part of the general question of supplying consultants for the council's hospitals.

The healthy children under 3 years in the Council's care at the end of the year numbered 706, of whom 442 were separated from their parents. These children require different accommodation in the first year of life, in the second year of life, and in the third year, when they are becoming more active and independent At the present time each nursery accommodates all three groups.

MENTAL.

The late boards of guardians had observation wards for mental patients in 21 hospitals and institutions. These wards on the whole fell short of the minimum standard for good classification and efficient treatment. Only 5 of the hospitals had a complete unit with two wards, day-room, airing court, and padded cells. In future schemes the aim will be to have larger and more efficient units. At present only 2 of the hospitals with mental wards have a mental specialist as consultant. Since September, 1930, trained mental welfare workers have been acting as home-visitors for two of these hospitals. X ray apparatus is or will be installed in most of the hospitals, and during the year Dr. Stanley Melville, who has been appointed consulting radiologist, has made a careful review of the plant in use. His report emphasises the fact that nowadays the radiologist at each hospital should be adequately trained and experienced in this special work.

ADMINISTRATION.

It is expected to effect considerable economies in the purchase of medical supplies, and a sample room has been set aside in the County Hall, where the contract standard samples and samples of instruments are available for inspection. Unusual and expensive instruments will also be kept in the sample room and be available for loan to the hospitals.

Special accommodation has been set aside for children suffering from chicken-pox, whooping-cough, mumps, and measles, and in order to deal with a long waiting-list of school-children needing operations for enlarged tonsils and adenoids arrangements have been made for these children to be operated upon in certain of the general hospitals. As regards convalescent accommodation, there are now available 500 beds at Queen Mary's Hospital, Sidcup, which was opened by Princess Mary in July, 1930; 320 beds at St. Benedict's Hospital, formerly known as Tooting Home; and the Council have acquired Heatherwood Hospital, Ascot (136 children's beds), from the United Services Fund, along with its obligation to the children of ex-Service men.

The hours of awakening patients at the 28 general hospitals were found to vary considerably. At ten of them patients were awakened at or before 5 A.M. It is now proposed that the awakening hour should not be before 6 A.M., and that all hospitals should be raised to this standard as staff becomes available. Incidentally, the report shows that the settlement of standard conditions for the various grades of nurses has already had its effect in increasing the applications for entry as probationers in the Council's service. The creation of a nursing staff common to the whole of the Council's hospitals has provided wide facilities for training and experience and opportunities for promotion more extensive than those in any comparable service.

EX-M.A.B. HOSPITALS.

Sir F. Menzies points out that when the special hospitals were transferred from the M.A.B., the Council took over a highly organised system of hospitals, the administration of which had, as a result of a natural process of development over a long period of years, been coördinated, and that all that was necessary was to adapt the methods under which they had been administered to the Council's system, a comparatively simple process. Amongst the research work in progress at the infectious hospitals are a trial of vitamin A concentrate in the prevention of secondary infections, such as middle-ear disease, under the supervision of Prof. S. J. Cowell; a trial of the aspiration method of treating laryngeal diphtheria, and the study of the heart in diphtheria by means of the electrocardiograph. Convalescent serum is in successful use for the prevention of measles, and encouraging results are reported from the treatment of parkinsonian cases with the dried extract of stramonium (U.S.A. pharmacopœia). Cases of acute poliomyelitis are sent to the Western Hospital, and the absence of any epidemic prevalence during the year is indicated by the fact that only five cases were admitted. Small-pox cases admitted to the "River hospitals" numbered 6170, of whom 19 died. Nine babies were born in hospital; 35 babies not suffering from small-pox were admitted with variolous mothers, and five mothers not suffering from small-pox with variolous babies. During the year four cases of acute encephalomyelitis occurred, of which one only had been recently vaccinated. Mr. M. S. Mayou, F.R.C.S., reports that 196 babies and 113 mothers were admitted to St. Margaret's Hospital for ophthalmia neonatorum. The number of damaged eyes was less, but still "far too many." Some cases are admitted with the cornea damaged by too strong nitrate of silver or perchloride of mercury. Many midwives visited the institution during the year, but not a single medical student. Mr. Mayou deplores the absence of the latter.

SYPHILITIC MOTHERS.

Mr. John Adams, F.R.C.S., reports on the work of Thavies' Inn V.D. Hospital. Three patients were confined of macerated babies a few days after admission. All babies born from syphilitic mothers were discharged with a negative Wassermann test, except four, who left within a month. Of the latter, two had out-patient treatment and became negative, and the other two were lost sight of. Many children born of syphilitic mothers have been under observation since 1917, and had blood tests from time to time. All have appeared healthy, and none has shown any signs of syphilis.

TUBERCULOSIS.

Dr. James Watt, chief medical officer, tuberculosis service, reports that 3228 cases of pulmonary tuberculosis were admitted to the hospitals, and that the average duration of stay was longer than in the previous year. He states that in other countries the duration of stay in hospital is 50 per cent. longer than in England. The recognition during the last ten years of the poor after-results of sanatorium treatment, he says, has led to a revision of methods. A much larger proportion of cases are being treated by surgical methods, and when it is more widely recognised that thoracoplasty, generally reserved for hopeless cases, gives as high a proportion of cases alive after five years, as ordinary sanatorium treatment can give for all cases, early and advanced, it is certain to be used more extensively. He also refers to the promising results obtained from the injection of gold salts, and to the need for further research as to the action of this remedy and the best dosage. He recommends the institution of out-patient clinics at certain of the Council's hospitals for the continuance of pneumothorax treatment. The immediate results of treatment on discharge from Pinewood and King George V. Sanatorium were apparently satisfactory, but, if we are to judge by past experience, 50 per cent. of the patients will die within five years, and only 25 per cent. be fit for work. It may be, he thinks, we have paid too much attention in the past to the disappearance of symptoms and physical signs, and too little to X ray pictures of the condition of healing of the lungs.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED FEB. 6TH, 1932.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 57 (last week 49); scarlet fever, 1485; diphtheria, 1015; enteric fever, 36; pneumonia, 1742; puerperal fever, 55; puerperal pyrexia, 99; cerebro-spinal fever, 48; acute poliomyelitis, 6; acute polio-encephalitis, 4; encephalitis lethargica, 7; continued fever, 1; dysentery, 20; ophthalmia neonatorum, 91. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on Feb. 9th–10th was as follows: Small-pox, 105 under treatment, 4 under observation (last week 110 and 3 respectively); scarlet fever, 1199; diphtheria, 1502; enteric fever, 10; measles, 905; whooping-cough, 334; puerperal fever, 13 (plus 10 babies), encephalitis lethargica, 220; poliomyelitis, 4; "other diseases," 241. At St. Margaret's Hospital there were 15 babies (plus 9 mothers) with ophthalmia neonatorum.

Deaths.—In 117 great towns, including London, there was no death from small-pox or enteric fever, 44 (15) from measles, 7 (1) from scarlet fever, 50 (11) from whooping-cough, 36 (7) from diphtheria, 53 (8) from diarrhœa and enteritis under two years, and 278 (81) from influenza. The figures in parentheses are those for London itself.

The reported deaths from influenza are still falling, but the total deaths for the year so far amount to 1732 against 1126 for the corresponding period of 1931. Of the great towns Birmingham again stands highest with 12 deaths from influenza, Manchester following with 8, Croydon, Bradford, Sheffield, and Swansea, each with 6. Manchester reported 11 deaths from measles, Stoke-on-Trent 5. Whooping-cough accounted for 4 deaths at Liverpool, 3 at Manchester.

The number of stillbirths notified during the week was 273 (corresponding to a rate of 41 per 1000 births), including 41 in London.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS.

DANGEROUS DRUGS ACTS AMENDMENT.

IN the House of Lords on Thursday, Feb. 11th, a Bill was introduced to amend the Dangerous Drugs Acts. The measure was read a first time.

CHILDREN AND YOUNG PERSONS BILL.

On Friday, Feb. 12th, the House of Commons considered the Children's and Young Persons Bill.

Mr. OLIVER STANLEY, Under-Secretary for Home Affairs, in moving the second reading of the measure, said that its main object was to amend the existing law contained in the Children Act, 1908, and other statutes relating to the protection of neglected children and young persons and the treatment of young offenders. The Bill would make a beneficial alteration in the social life of the country by which it was hoped to reduce the criminal population. He had to confess that the measure was one of the worst examples of legislation by reference that he had ever seen. It was intended that it should be followed by a Consolidating Act in which could be gathered together all the provisions dealing with the child and the young offender. Under the Bill there would be magistrates chosen from a special panel, selected for their knowledge and of ihterest in work of this kind. It would be left to the Lord Chancellor to prescribe rules for the selection of a special panel of magistrates to sit in Juvenile Courts, and a special chairman to preside. Great importance was attached to the separation in venue of the Juvenile Court from the Adult Court. The right of the parent to object to a child being dealt with in a Juvenile Court was to be done away with, but the right of the young person to object himself and to claim to be tried in another place would remain. Special arrangements were made in regard to the Metropolitan courts. The Bill extended the jurisdiction of juvenile courts over young offenders, raising the age from 16 to 17. No change was made in the case where a young person charged with an adult was tried in an adult court, but power was given to the adult court to remit the young offender to a juvenile court for treatment.

WHIPPING.

One of the most important changes was the abolition of certain powers of the court to order whipping. There was no mention of whipping in the Bill at all, but power would still remain to send a boy over 14 to Quarter Sessions to be tried on any charge where Parliament had made whipping the statutory punishment. Whipping as a punishment had been falling into disuse. The annual figures of whipping had fallen from 2079 in 1913 to only 130 in 1930, and although these figures had been analysed it was quite impossible to trace the residue to any particular crime that would enable then to say that the magistrates' experience had shown that, although whipping might not be an adequate punishment in all circumstances, it was useful under this or that conviction. There was all the difference in the world between being whipped by a school-master for being idle and being whipped by a policeman. (Hear, hear.) It was one of the most revolutionary proposals of the Act of 1908 that for the first time it allowed the courts to entertain the cases of children who had committed no offence but whose circumstances made it desirable that they should receive protection. This right was given in respect of children up to the age of 16, with regard to specific categories of home circumstances, including destitution, drunken parents, sexual offences, prostitution, or wandering without parental control. By this Bill it was proposed to extend the age from 16 to 17 and to abolish those special categories and substitute for them one wide definition which would bring in a number of cases that were brought in to-day only by a very great strain of the law. There was no question of ignoring the parent and substituting the State, because the fundamental basis of these cases was that parental control had been abdicated.

REFORMATORY AND INDUSTRIAL SCHOOLS.

The Bill also provided an alteration in connexion with the reformatory and industrial schools, which in future would be known as "approved" schools. Both these types of school were now connected with the State, and both could be used. The industrial school could be used for neglected children, for offenders under 12, or for first offenders up to 14; the reformatory school must be for all other types of offenders. The distinction between the two types of school was largely artificial; both classes of children had to suffer the withdrawal of their liberty, and it was proposed to abolish the distinction between the two types of school and put them both under the head of "approved" schools. The period of detention in future would be automatic. For a child under 14 it would be for three years, or in any case until the child had reached the age of 14; in the case of the young person it would be for three years, but not in any case beyond 19. For both children and young persons it would be possible, with the assent of the Home Secretary, to detain them for another six months, if they required further vocational training before it was possible to find them employment. This automatic period would give a chance of experiment in short term detention in the schools. The Home Secretary would have power to license at any time after six months, and it was intended to try with the most suitable type a short period of training for six months, or some period of that kind.

STREET TRADING.

Part III. of the Bill gave effect to the recommendations made in the third report of the Child Adoption Committee for the registration and inspection of voluntary homes. Part IV., which dealt with the employment of children and young persons, was largely reprinted from the Education Act, 1921, with minor drafting amendments. There was one alteration of some importance which affected street trading. Under the Education Act, 1921, street trading was prohibited up to the age of 14, and regulated by the education authorities between the ages of 16 and 18. It had been decided not to regulate under this Bill the employment of boys and girls in unregulated employment. He recognised that that would cause disappointment in some quarters, but this question was not related in any way to the purposes of the Bill. It was estimated that the Bill would save the State £8000 a year. (Cheers.)

OMISSIONS REGRETTED.

Mr. R. J. DAVIES said that the Opposition welcomed the Bill. He regretted that the Bill did not provide for the establishment of observation centres which have produced very good results in Belgium.

Viscountess ASTOR said she regretted that the Government have not included in the Bill some of the recommendations of the committee on sexual offences against young persons. That type of crime was increasing, and those guilty of it often received inadequate sentences. It was estimated that 400,000 children were employed in unregulated trades, and some of them worked 72 hours a week. She thought that they ought to fight the opposition of people who wanted to make money by employing children for 72 hours a week. The House of Commons ought to insist on the hours of employment of children between the ages of 14 and 16 being regulated.

Dr. SALTER said he understood that great efforts

were to be made during the later stages of the Bill to secure the repeal of Section 120 of the 1908 Act which prohibited the admission of children to public house bars. He urged the Government to resist to the utmost any amendment of the law in that direction.

After further debate, the Bill was read a second time.

The financial resolution in connexion with the Bill was agreed to in Committee.

VETERINARY SURGEONS (IRISH FREE STATE AGREEMENT) BILL.

The Veterinary Surgeons (Irish Free State Agreement) Bill, a measure to confirm and give effect to a certain agreement made between His Majesty's Government in the United Kingdom and His Majesty's Government in the Irish Free State with respect to the registration and control of veterinary surgeons, passed through Committee in the House of Lords on Tuesday, Feb. 16th, without amendment.

IMPORT DUTIES BILL.

The second reading of the Import Duties Bill was debated in the House of Commons on Monday, Feb. 15th, and Tuesday, Feb. 16th. The measure applies a 10 per cent. *ad valorem* tariff to imports into this country with the exception of a free list of articles detailed in the first schedule, including wheat in grain, meat—i.e., beef, veal, mutton, lamb, pork, bacon, ham, and edible offals, but not including extracts and essences of meat or meat preserved in any air-tight container—fish of British taking, including shell-fish, tea, newspapers, periodicals, printed books, raw rubber, rubber latex, gutta percha and balata (raw), sulphur, mineral phosphates of lime, and radium compounds and ores.

On the conclusion of the second day's debate the motion for the rejection which had been moved by Mr. LANSBURY on behalf of the Opposition was negatived by 451 votes to 73—majority, 378. The Bill was then read a second time.

HOUSE OF COMMONS.

THURSDAY, FEB. 11TH.

Anthracosis and Silicosis.

Sir WILLIAM JENKINS asked the Home Secretary what progress had been made to get anthracosis scheduled in the workmen's compensation regulations in order to secure payments for men suffering from this disease in the mining industry.—Sir HERBERT SAMUEL replied: It has not been established that work in the anthracite mines is a cause of special pulmonary disease. The question of the effect of coal dust on the lungs has been referred to the Pulmonary Diseases Committee of the Medical Research Council for investigation, and it has been found that there are serious technical difficulties in prosecuting the researches necessary for determining the question. I am informed that it is receiving the close attention of the Medical Research Council, but I am sorry I cannot say when the work is likely to be brought to completion.

Sir WILLIAM JENKINS asked the Home Secretary what number of men had claimed compensation who were suffering from silicosis in South Wales; the number who succeeded in their claim; and the number refused, if any, and upon what grounds.—Sir HERBERT SAMUEL replied: Separate figures for South Wales as not available, but the Returns for Great Britain show that in 1929 there were 12 cases, and in 1930 18 cases of coal-miners who recovered compensation for disablement from silicosis. The Returns for 1931 are only now being collected. I regret that I am not in a position to give the total number of claims made or refused, or the reasons for refusal.

Dust as Factor in Crime Detection.

Mr. ROBINSON asked the Home Secretary whether his attention had been drawn to the scientific investigations made by foreign police experts into the analysis of dust as a factor in crime detection; in particular, whether he was aware of the work of Dr. Edmond Locard, of Lyon; and whether the Metropolitan police had adopted or investigated the methods advocated, and with what results, in any recent crimes.—Sir HERBERT SAMUEL replied: Yes, Sir. The Commissioner has continual and careful watch kept upon all developments in the scientific side of criminal investigation and has had his attention called to the work of Dr. Locard and many others. The Metropolitan police employ the best experts in the particular subject whenever it appears that scientific assistance is likely to be helpful. Careful scientific examination of dust is made wherever necessary, and although such cases are rare, the best technical assistance has been obtained whenever there has been grounds for supposing that it was likely to be of value.

Nursery Schools.

Mr. DAGGAR asked the President of the Board of Education how many new nursery schools had been opened and how many plans had been approved from July 1st, 1929, to August, 1931; and how many had been opened and plans for others approved since that date.—Sir DONALD MACLEAN replied: Between the beginning of July, 1929, and the end of August, 1931, 18 nursery schools were recognised for the first time by the Board of Education. In 13 of these cases the plans had been approved during the same period. Since the end of August, 1931, 5 further schools have received recognition, plans in all these cases having been approved before that date and after July, 1929. Plans for 10 further schools were approved between the beginning of July, 1929, and the end of August, 1931, and for one further school since the latter date. Apart from one voluntary proposal which has been abandoned, most of these 11 schools are either already opened though not yet formally recognised, or are approaching completion.

Viscountess ASTOR asked the President of the Board of Education whether he was aware that the Bradford Elementary Education Subcommittee had decided to cut down the milk supply of children in nursery schools to one-third of a pint per day, in spite of the fact that over 50 per cent. of the children in the Bradford Nursery School were on the free lists, which meant a poverty basis and very little milk supplied in their homes; and whether he would issue a circular to all education committees giving the opinion of the Medical Research Council on the subject and requiring the issue of the correct quantity of milk to all children.—Sir DONALD MACLEAN replied: I have no official information as to any changes made by the Bradford Local Education Authority in the matter of the supply of milk to children in their nursery schools, but I have seen a statement in the press that certain modifications had been made on an experimental basis to be reconsidered next April. The Board's regulations in regard to nursery schools require that adequate arrangements must be made for attending to the nourishment of the children, and I am staisfied that this requirement is being generally met, not only by the provision of milk, but normally by the supply of good dinners also, and I do not therefore think that it is necessary to issue a circular to local education authorities on the subject.

Staffing of Oldchurch Hospital.

Mr. HUTCHISON asked the Minister of Health whether he could investigate the staffing of the Oldchurch Hospital at Romford, where recently an attendant lost his life in the execution of his duty by being attacked by an insane patient; whether the staff was adequate for the purpose; and whether he was aware of the dissatisfaction of the staff with the conditions of working and with the obsolete character of the buiding.—Sir E. HILTON YOUNG replied: Yes, Sir. I have asked for a report upon these matters. Pending the receipt of that report my hon. friend will, I am sure, not expect me to express any opinion in regard to the subject matter of the second part of the question.

Imports of Liquid Milk.

Brigadier-General CLIFTON BROWN asked the Minister of Health who were the principal importers of liquid milk during the last three months who were registered by the port sanitary authorities of London, Harwich, and Newhaven; and whether any of the liquid milk imports came in pasteurised.—Sir E. HILTON YOUNG replied: It is compulsory for importers of liquid milk to be registered with the Local Authority under the Public Health (Imported Milk) Regulations, and I do not think that I could properly give a list of the names of persons thus required to be registered. With regard to the last part of the question, there is reason to believe that most, if not all, the imported milk in question is heat treated before shipment.

The Spahlinger Treatment.

Mr. HAMMERSLEY asked the Minister of Health what reports he had received from his officials on the publication by Spahlinger of his formula for the treatment of tuberculosis.—Sir E. HILTON YOUNG replied: I have received from M. Spahlinger a copy of his statement as issued to the press, and I am considering it. I have also sent copies of the statement to the Medical Research Council and other competent research bodies for their observations.

MONDAY, FEB. 15TH.

Sterilisation of the Mentally Unfit.

Captain WATT asked the Minister of Health if, in view of the social evil arising out of unrestricted propagation amongst mentally defectives and the consequent increase in the number of such persons, he was prepared to investigate the question of the sterilisation of the mentally unfit and, if desirable, to introduce legislation to eradicate the evil.—Mr. ERNEST BROWN (Parliamentary Secretary to the Ministry of Health) replied: The desirability of legislation could not, in my right hon. friend's view, be determined until there has been a full and authoritative inquiry into the problems of mental deficiency, in which sterilisation is only one of several inter-related questions. But as a first step towards such an inquiry, my right hon. friend proposes to arrange for a preliminary investigation of the scientific issues involved.

Dr. MORRIS-JONES asked if the right hon. gentleman would announce the names of the members of the Committee, but Mr. Brown replied that he had nothing to add to his answer.

Sale of Proprietary Medicines.

Sir JOHN HASLAM asked the Secretary to the Treasury if he was aware that certain makers of proprietary medicines offered their products to the public at one fixed retail price, although in certain cases the goods bore no patent medicine stamp and in other cases the self-same article had the full Government stamp; and whether he would take steps to prevent this evasion of the law and loss of public revenue.—Major ELLIOT (Financial Secretary to the Treasury) replied: I assume that my hon. friend is referring to cases where a medicine is sold unstamped by duly qualified chemists and druggists under the conditions of the statutory exemption from Medicine Stamp Duty in favour of "known, admitted, and approved of" remedies but is properly stamped when sold by other persons than qualified chemists and druggists. I would explain that the question of the prices charged is not a matter in which I can interfere and I am not aware of any infringement of the law in such cases.

TUESDAY, FEB. 16TH.

Alleged Illegal Detention of a Girl.

Mr. WEDGWOOD asked the Minister of Health whether his attention had been called to a recent case of illegal detention of a so-called mentally deficient girl; whether any other persons were detained by the same people; and what was the practice with regard to inspection of homes for orphans or feeble-minded persons.—Mr. E. BROWN (Parliamentary Secretary to the Ministry of Health) replied: My right hon. friend's attention has been called to the case. This girl was not certified as mentally defective, nor regarded as subject to be dealt with under the Mental Deficiency Act. There is no evidence that other persons are being detained by the same people. All premises certified for the reception of mental defectives are regularly inspected by the Board of Control.

MEDICAL NEWS

University of Cambridge.

On Feb. 13th, the following degrees were conferred:—
M.D.—C. F. Brockington.
B.Chir.—G. D. Kersley and T. C. Larkworthy.

Royal College of Physicians of Ireland.

At a meeting of the College on Feb. 5th the following were admitted to membership: James Andrew Donnelly Deeny, M.D., Gerald Cecil Dockeray, M.B., Vincent Cornelius Ellis, M.D., Maurice Fitzgerald Nash Griffin, R.A.M.C., Anna Mary Elizabeth McCabe, M.B., Desmond Kyran Mulvany, M.B., Gerard Thomas O'Brien, L.R.C.P., and Alan Herbert Thompson, M.B.

British College of Obstetricians and Gynæcologists.

At a recent meeting of the Council, with Prof. W. Blair Bell, the President, in the chair, the following Members were elevated to the Fellowship: John Hewitt, Frederick Arthur Maguire, Donald McIntyre, Wilfred Shaw, and Barry Keyte Tenison Collins.

The following were elected Members: Emily Grace Elspeth Baillie, *Arthur Capel Herbert Bell, Caroline Anne Elliott, Elinor Drinkwater Jackson, David Johannes Malan, Louisa Martindale, *William George Richards, and *Albert Sharman.

* By examination.

Royal College of Surgeons of England.

At a meeting of the Council on Feb. 11th, with Lord Moynihan, the President, in the chair, diplomas of membership were conferred on 129 candidates, whose names were given in our issues of Feb. 6th and 13th as recipients of the L.R.C.P. (with the exception of G. Ashton, H. F. Bateman, and E. A. Knappett).

Diplomas in public health were granted jointly with the Royal College of Physicians to the candidates whose names appeared in our issue of Feb. 6th.

Sir Percy Sargent was appointed Bradshaw lecturer, and Mr. Francis Weston, F.S.A., past Master of the Barbers' Company, Thomas Vicary lecturer for the ensuing year. Mr. Victor Bonney was reappointed representative of the College on the Central Midwives Board for the period of one year from April 1st, 1932.

The gift of a silver bowl, presented by Sir George Makins, Past President of the College, was reported.

The Chester Royal Infirmary was recognised for the 12 months' surgical practice required of non-members before admission to the Final Fellowship Examination.

The President reported that an election of three Fellows into the Council would take place on Thursday, July 7th next, at 11 A.M., in the vacancies occasioned by the retirement in rotation of Mr. W. McAdam Eccles, Mr. Wilfred Trotter, and Sir Charles Gordon-Watson; that notice of the election would be given to the Fellows by advertisement and by circular on March 11th; and that March 21st would be the last day for the nomination of candidates, and that a voting paper would be sent on April 6th to every Fellow of the College whose address was registered at the College.

Industrial Health Education Society.

The annual meeting of this society will be held at the B.M.A. House, Tavistock-square, W.C., at 4 P.M. on Tuesday, Feb. 23rd. The speakers will be Sir Thomas Horder (the President), Lord Luke, and Sir William Haldane.

Society of Medical Officers of Health.

A meeting of the Fever Group of this society will be held at 1, Upper Montague-street, Russell-square, London, W.C., on Friday, Feb. 26th, at 4 P.M. A paper will be read by Dr. R. Armstrong on the Serum Treatment of Pneumonia. All interested in the subject are invited to attend.

Society for the Study of Inebriety.

The annual meeting of this society will be held at 11, Chandos-street, London, W., at 4 P.M., on Tuesday, April 12th. Dr. J. D. Rolleston will open a discussion on the Cigarette Habit.

Hunterian Society.

Award of the Gold Medal for 1932.—The Examination Committee which met on Jan. 28th was unanimous in awarding the medal to Griffith Ifor Evans, D.M. Oxf., F.R.C.S. Eng., of Caernarvon for an essay entitled "Chronic Familial Syphilis"; Gwladys Victoria Smallpiece, M.D., M.R.C.P. Lond., proxime accessit. The next award of the medal will be made in 1933 for essays received on or before Dec. 31st, 1932. The competition is open to all general practitioners in Great Britain, Ireland, and the Channel Islands. Particulars from the Hon. secretaries, Dr. D. C. Norris, 14, City-road, E.C.1, and Mr. Andrew McAllister, 79, Wimpole-street, W.1.

The *Annual Dinner* of the Society was held on Feb. 11th, at the May Fair Hotel, the President, Dr. David Ross, being in the chair. After the loyal toasts the memory of John Hunter was toasted in silence. Lord Meston, Chancellor of Aberdeen University, proposed "The Hunterian Society," remarking on the revolution in the practice of surgery brought about by Hunter through sheer force of intuitive genius. Dr. Ross in reply, admitted the importance of the Hunterian Society in carrying on the spirit of Hunter. "We are confident," he said, "that we are a great Society," adding, as a good Aberdonian himself, "This is a great night for Aberdeen, with the Chancellor and Rector of its University (Sir Arthur Keith) both present." At the end of his remarks he handed the Society's gold medal designed by Mr. Thornton Shiells, to Dr. Griffith Evans, and circulated a plaque of the medal presented by the honorary treasurer, Dr. Irwin Moore. Sir Thomas Carey Evans proposed "The Lord Mayor and Corporation of the City of London," and Sir Maurice Jenks in reply said how proud the City was of its association with Hunter and the Hunterian Society. Dr. D. A. Coles proposed "The Guests and Kindred Societies" to which Mr. Justice McCardie and Col. C. T. Samman, late Master of the Apothecaries' Society, replied. Sir Arthur Keith added a few graceful words, remarking that, if Hunter himself, "that red-haired and rather quarrelsome man from Scotland," had been present, he might not have been instantly appreciated by the company; but, he added, he was a man who looked deeply into life and his greatness is still being disclosed.

The Eugenics Society: the Galton Lecture.

The annual dinner of the Eugenics Society was held at the Rembrandt Hotel, London, on Feb. 16th, the President, Sir Bernard Mallet, being in the chair.

After the dinner the Galton lecture was delivered by Mr. E. J. Lidbetter on the "Social Problem Group"; it was a report upon a detailed and painstaking investigation into the incidence of social inadequacy in an East London district. The main message was the necessity to recognise the existence of a definite race, usually of chronic paupers, breeding-in through successive generations, becoming parasitic upon the community, and passing their lives at the public expense in institutions, asylums, infirmaries, and jails. In illustration of his statements, the lecturer summarised a series of pedigrees which, he said, were in no sense selected but were, on the contrary, representative of hundreds which had been put together; and by the help of diagrams he proved the tendency of these unfortunates to in-breed with great fertility and to produce offspring from generation to generation of insane, mentally and physically defective, and incompetent persons. He pointed to the fact that while the definitely defective, who formed the smaller proportion, could be dealt with in various manners, the higher grade defective, being a freer agent, hampered the whole administrative machinery of society, lowering the general standard of life and of employable labour, and spreading venereal disease. The conclusions reached by the Eugenics Society were, he said, being confirmed by a Departmental Committee from the statistical angle, and the existence of a "Social Problem Group" was being definitely proved. But further and more extensive investigations would have to be carried out before any general remedial measures could be suggested.

A vote of thanks to the lecturer was proposed by the Rev. J. C. Pringle, secretary of the Charity Organisation Society, and seconded by Lord Riddell, who hoped that Mr. Lidbetter would be converted to the view that in voluntary sterilisation a partial remedy, at least, would be found for some of the terrible circumstances revealed. A vote of thanks having been enthusiastically given, Mr. Lidbetter disclaimed any definite opposition to the proposed legislation in respect of sterilisation, but pointed out that in the pedigrees which he had detailed there occurred among the offspring of the "Social Problem Group" a certain proportion of apparently normal persons whose children often reverted to defective types.

The dinner was very amply attended.

Manchester Royal Infirmary.

Weekly post-graduate lectures and demonstrations will be resumed at this hospital on Tuesday next at 4.15 P.M., and weekly demonstrations of clinical cases and methods in wards and special departments on Friday at the same hour. Particulars will be found in our Medical Diary each week.

An Old Patients Association.

Attached to Salford Royal Hospital is an old patients' association, numbering some 1500 members. The fundamental obligation is to subscribe half a crown annually for the maintenance of "grateful remembrance beds." In the last five years three such beds have been opened, and it is expected that a fourth will be produced in the coming summer.

Dr. Jessie Macgregor Prize, Edinburgh.

An award of this prize will be made in July for original work in medicine. Such work must not have been published more than three years previously. The prize is of the value of £70 and applicants must be medical women who have studied at Edinburgh for at least a year and are graduates of the University or hold the triple qualification. The successful applicant is expected to deliver a lecture on her work. Applications marked "Dr. Jessie Macgregor Prize in Medical Science" must reach the convener of trustees, Royal College of Physicians of Edinburgh, not later than April 30th.

Appointments

OVEREND, H. F., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory and Workshop Acts for Blackpool.

TIVY, C. B. F., M.Ch. R.U.I., a Medical Referee under the Workmen's Compensation Act (Ophthalmic cases) for Circuit 59 and certain districts in Circuit 57.

WHITELAW, A. D., M.D., Ch.B. Camb., Medical Officer of Health, East Herts Combined District.

West Kent General Hospital: OLIVER C. PYE, junr., M.B., B.Chir. Camb., Hon. Asst. Physician; JOHNSTON, D. M., M.D. Durh., Hon. M.O. in charge of Artificial Sunlight Dept.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Feb. 22nd.—8 P.M., ODONTOLOGY. Casual communication: Mr. Harvey H. Kenshole: A Case of Proliferation of Bone in the Maxilla and Mandible. Paper: Dr. H. H. Stones: The Surgical Treatment of Pyorrhœa Alveolaris.

TUESDAY.—5 P.M., MEDICINE. Cinematograph demonstration. Dr. Ladislas Schmidt (Pistany): Respiratory Movements in Disease. Subject introduced by Sir Charlton Briscoe.

WEDNESDAY.—5 P.M., COMPARATIVE MEDICINE. Discussion: Milk Fever or Hypocalcæmia in Parturient Cows, and Similar Conditions in Other Animals and Man. Opener: Prof. J. Russell Greig. Speakers: Prof. E. C. Dodds, Mr. W. L. Little, Prof. H. Dryerre, Mr. O. Stinson, and Dr. R. Robison.

THURSDAY.—8.30 P.M., UROLOGY. Paper: Mr. Cyril A. R. Nitch: Transplantation of the Ureters into the Large Bowel. A film will be shown illustrating the operation.

FRIDAY.—5 P.M., DISEASE IN CHILDREN. (Cases at 4.30 P.M.). 8 P.M., EPIDEMIOLOGY AND STATE MEDICINE. Paper: Dr. V. D. Allison and Dr. W. Gunn: The Epidemiology of Streptococcal Infections. Members of the Sections of Medicine and Pathology are specially invited to attend.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Feb. 22nd.—8.30 P.M., Discussion on Asthma and Allied Conditions. To be introduced by Dr. George H. Oriel and Dr. George W. Bray.

HUNTERIAN SOCIETY.

THURSDAY, Feb. 25th.—9 P.M. (at the Apothecaries Hall, Water-lane, E.C.), Dr. J. B. Christopherson: The Ætiology of Chronic Bronchitis. (Hunterian Oration.)

MEDICO-LEGAL SOCIETY.

THURSDAY, Feb. 25th.—8.30 P.M. (at 11, Chandos-street, Cavendish-square, W.), Dr. Gerald Slot: Sudden Death. To be followed by a discussion.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos-street, W.

FRIDAY, Feb. 26th.—8.30 P.M., Dr. Anwyl Davies: The Reasons of the Failure of Venereal Disease Clinics to Attract Women Patients. A Discussion will follow.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

TUESDAY, Feb. 23rd.—5 P.M., Prof. Cyril Okell: The Rôle of the Hæmolytic Streptococci in Infective Disease. (Second Milroy lecture.)

THURSDAY.—5 P.M. (Last Milroy lecture.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY, Feb. 22nd.—5 P.M., Dr. A. J. E. Cave: Morphological and Functional Anatomy of the Human Cervical Spine. (Arris & Gale lecture.)

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Feb. 22nd, to SATURDAY, Feb. 27th.—MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square. Fri., at 4 P.M., Dr. R. D. Lawrence: Some Difficulties in Insulin Treatment in General Practice. Open only to Members.—HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars, S.E. Thurs., at 2.30 P.M., demonstration by Dr. Wilmott Evans.—CHELSEA HOSPITAL FOR WOMEN, Arthur-street, S.W. Fri., at 2 P.M., Lecture by Mr. F. Roques, followed at 3 P.M. by operations.—WEST END HOSPITAL FOR NERVOUS DISEASES, Welbeck-street, W. Daily at 5 P.M., lectures and clinical demonstration in Neurology.—BETHLEM ROYAL HOSPITAL, Monks Orchard, Eden Park. Tues. and Fri., at 11 A.M., demonstration in Psychological Medicine.—ROYAL ALBERT DOCK HOSPITAL, Greenwich. Week-end course in Clinical Surgery, Sat. and Sun. all day.—Further particulars from the Fellowship.

NATIONAL HOSPITAL, Queen-square, W.C.

MONDAY, Feb. 22nd.—2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Kinnier Wilson: Epilepsy.

TUESDAY.—2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Dr. Martin: Diseases of the Vertebral Column with Nervous Symptoms.

WEDNESDAY.—2 P.M., Dr. Martin: Out-patient Clinic.

THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Gordon Holmes: Symptoms of Cerebellar Disease.

FRIDAY.—2 P.M., Dr. Adie: Out-patient Clinic. 3.30 P.M., Sir Percy Sargent: Surgery of the Sympathetic System.

WEST LONDON POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, Feb. 22nd.—10 A.M., Gynæcological Wards, Genito-urinary Operations, Skin Department. 11 A.M., Surgical Wards. 2 P.M., Surgical Wards, Medical, Surgical, Eye, and Gynæcological Out-patients.

TUESDAY.—9.30 A.M., Operations, 10 A.M., Medical Wards, Dental Department. 11 A.M., Throat Operations, Clinical

Demonstration in Surgery. 2 P.M., Operations, Medical Surgical, Throat Out patients.
WEDNESDAY.—10 A.M., Medical Wards, Children's Medical Out-patients. 2 P.M., Gynæcological Operations, Medical, Surgical, and Eye-Out-patients. 4.45 P.M., Venereal Diseases.
THURSDAY.—10 A.M., Neurological Out-patients. 11.30 A.M., Fracture Demonstration. 2 P.M., Operations, Medical, Surgical, Eye and Genito-urinary Out-patients.
FRIDAY.—10 A.M., Medical, Wards, Skin Out-patients, Dental Department. 12 noon, Medical Lecture. 2 P.M., Medical, Surgical, and Throat Out-patients Operations.
SATURDAY.—9 A.M., Throat Operations. 10 A.M., Medical Wards, Children's Medical Out-patients, Surgical Out-patients.

GUY'S HOSPITAL, London Bridge, S.E.
MONDAY, Feb. 22nd.—5 P.M., Dr. A. E. Barclay: The Use of X Rays in Physiological Investigation.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.
TUESDAY, Feb. 23rd.—3.15 P.M., Dr. C. C. Beatty: Misleading Symptoms.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL, University-street, W.C.
TUESDAY, Feb. 23rd.—5.15 P.M., Dr. Dorothy Russell: Intracranial Tumours.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.
SUNDAY, Feb. 21st.—10.45 A.M., Mr. W. H. McMullen: Headaches Associated with Ocular Defects. 11.45 A.M., Mr. Norman C. Lake: The Diagnosis of Gastric and Duodenal Ulcer.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark-hill, S.E.
THURSDAY, Feb. 25th.—9 P.M., Dr. M. Critchley: Precocious and Premature Old Age.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Hospital, Ouseley-road, Balham.
WEDNESDAY, Feb. 24th.—4 P.M., Mr. V. Z. Cope: Demonstration of Surgical Cases.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.
FRIDAY, Feb. 26th.—4 P.M., Mr. N. Asherson: Complications of Tonsillectomy.

HOSPITAL FOR EPILEPSY AND PARALYSIS, Maida Vale, W.
THURSDAY, Feb. 25th.—3 P.M., Dr. Wilfred Harris: Demonstration of Cerebral Tumours.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL.
WEDNESDAY, Feb. 24th.—4 P.M., Mr. W. H. Ogilvie: Common Injuries of the Wrist and their Treatment.

CITY OF LONDON MATERNITY HOSPITAL, City-road, E.C.
THURSDAY, Feb. 25th.—5.30 P.M., Mr. R. Christie-Brown: General Principles in the Treatment of Hæmorrhage as applied to Obstetrics.

ST. PETER'S HOSPITAL, Henrietta-street, W.C.
WEDNESDAY, Feb. 24th.—3 P.M., Mr. J. A. Andrews: Enlarged Prostate.

ST. MARK'S HOSPITAL, City-road, E.C.
THURSDAY, Feb. 25th.—4.30 P.M., Dr. Norman P. Henderson: Opaque Enema: Technique, Value, Difficulties, Interpretation.

ST. JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY.
WEDNESDAY, Feb. 24th.—4.15 P.M. (at St. John's Hospital, 49, Leicester-square, W.C.), Clinical Cases.

NATIONAL COUNCIL FOR MENTAL HYGIENE.
WEDNESDAY, Feb. 24th.—5.30 P.M. (at 11, Chandos-street, W.), Dr. E. B. Strauss: The Borderline Case.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.
WEDNESDAY, Feb. 24th.—4 P.M., Dr. W. S. C. Copeman: Control of Industrial Rheumatic Diseases in the Future.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Feb. 23rd.—5 P.M., Dr J. A. Drake: Leprosy.
THURSDAY.—5 P.M., Dr. J. E. M. Wigley: Leukæmia Cutis. Mycosis Fungoides.

UNIVERSITY COLLEGE, Gower-street, W.C.
FRIDAY, Feb. 26th (and following MONDAY and TUESDAY), 5.15 P.M., Prof. A. J. Clark: Reaction Between Drugs and Cells.

ANCOATS HOSPITAL, Manchester.
THURSDAY, Feb. 25th.—4.15 P.M., Dr. W. J. S. Reid: Microcytic Anæmia.

MANCHESTER ROYAL INFIRMARY.
TUESDAY, Feb. 23rd.—4.15 P.M., Dr. A. Ramsbottom: Some Points in the Diagnosis and Treatment of Pleural Effusion.
FRIDAY.—4.15 P.M., Mr. J. Morley: Demonstration of Surgical Cases.

MANCHESTER ROYAL INFIRMARY.
TUESDAY, Feb. 23rd.—4.15 P.M., and following FRIDAY at the same hour: Clinical Cases in the Wards.

ST. MARY'S HOSPITALS, Manchester.
FRIDAY, Feb. 26th.—4.15 P.M. (at the Whitworth-street West Hospital), Dr. J. F. Ward: Some Problems in Infant Feeding.

FACULTY HALL, St. Vincent-street, Glasgow.
TUESDAY, Feb. 23rd.—4 P.M., Dr. J. Cowan: Arterial Disease.

ROYAL SAMARITAN HOSPITAL FOR WOMEN, Glasgow.
WEDNESDAY, Feb. 24th.—4.15 P.M., Dr. D. McIntyre: Gynæcological Cases.

Vacancies

For further information refer to the advertisement columns.

Aberdeen Royal Mental Hospital.—Jun. Asst. Phys. £300.
Antrim Mental Hospital, N. Ireland.—Res. Med. Supt. £800.
Assam.—M.O. for Tea Estates. Rs.1500 a month.
Ayr County Hospital.—H.S. £150.
Birmingham, General Hospital.—Res. Surg. Reg. £100–£120–£140.
Birmingham, Maternity and Child Welfare Dept.—Res. M.O. £250.
Birmingham, Queen's Hospital.—Ophth. H.S. and Res. Anæsthetist. £70–£100.
Blackburn, Calderstones (Certified Institution for Mental Defectives) Whalley.—Asst. M.O. £500.
Bootle General Hospital, Nr. Liverpool.—Cas. O. and H.S.'s. Each at rate of £150.
Brighton Education Committee.—Asst. School M.O. and Asst. to the M.O.H. £500.
Bristol Eye Hospital.—Hon. Asst. Surgeon.
British Medical Association.—Asst. Med. Secy. £800.
Cambridge, Addenbrooke's Hospital.—Three H.S.'s to Special Depts. Each at rate of £130.
Cambridge University.—E. G. Fearnside Scholarship for Clinical Research, &c.
Cancer Hospital, Fulham-road, S.W.—H.S. At rate of £100.
Carlisle, Cumberland Infirmary.—H.P. 2nd H.S. and H.S. to Spec. Depts. Each £155.
Central London Throat, Nose, & Ear, Hospital, Gray's Inn-road, W.C.—Hon. Assts. for Out-patient Dept.
Charing Cross Hospital, Strand, W.C.—Surg. Reg. £150. Also Obstet. Reg. £100.
Children's Hospital, Hampstead, N.W.—Res. M.O. £100.
City of London Maternity Hospital, City-road, E.C.—Asst. Res. M.O. At rate of £80.
Doncaster Royal Infirmary.—Sen. Cas. H.S. At rate of £175.
Dudley, Guest Hospital.—Hon. Surgeon.
East Ham Memorial Hospital, Shrewsbury-road, E.—H.P. and H.S. and Cas. O. At rate of £150 and £120 respectively.
Edinburgh, Royal College of Physicians.—Dr. Jessie Macgregor Prize in Medical Science. £70.
Elizabeth Garrett Anderson Hospital, Euston-road.—Obstet. Asst. £50.
Exeter, Royal Devon and Exeter Hospital.—Cas. O. and H.S. to Spec. Depts. At rate of £150.
Great Yarmouth General Hospital.—Sen. and Jun. H.S.'s. At rate of £150 and £140 respectively.
Hampstead General and N.W. London Hospital, Haverstock-hill, N.W.—Cas. M.O. for Out-patient Dept. At rate of £100
Harrogate Infirmary.—Jun. H.S. £140.
Hull Royal Infirmary.—Hon. Surgeon. Also Hon. Asst. Surg.
Leicester Royal Infirmary.—H.S. and H.P.'s. Each at rate of £125.
Liverpool City.—Asst. Tuberculosis O. £500. Also Res. M.O.'s for Walton and Alder Hey Hospitals Each £200.
London Lock Hospital, 91, Dean-street, W.—Surg. Reg. £100.
London Lock Hospital, Harrow-road, W.—Surg. Reg. £100.
London School of Economics, Houghton-street, Aldwych, W.C.—6 Scholarships. Each £200.
Manchester Babies Hospital, Burnage-lane, Levenshulme.—Jun. Res. M.O. At rate of £50.
Manchester, Hulme Dispensary, Dale-street.—Res. M.O. £300.
Manchester, Northern Hospital, Park Place, Cheetham Hill-road. Jun. H.S. £100.
Manchester, Royal Children's Hospital, Pendlebury.—Res. M.O. At rate of £125.
Manchester, Royal Children's Hospital, Gartside-street.—Two Asst. M.O.'s. Each at rate of £150.
Manchester and Salford, Hospital for Skin Diseases.—H.S. At rate of £100.
Miller General Hospital, Greenwich-road, S.E.—Res. Surg. O. and Reg. £250. Also H.P. £100.
National Hospital for Diseases of the Heart, Westmoreland-street, Marylebone, W.—Res. M.O. Also Out-patient O. At rate of £150 and £125 respectively.
Newcastle-upon-Tyne, Hospital for Sick Children.—H.P. Also Sen. and Jun. H.S.'s. Each at rate of £100.
North Middlesex County Hospital, Edmonton.—Jun. Res. Asst. M.O. £250.
Northwood, Middx., Mount Vernon Hospital.—H.S. £150.
Nottingham City Mental Hospital.—Second Asst. M.O. £400.
Nottingham General Dispensary, Broad-street.—Res. Surgeon. £250.
Plymouth, South Devon and East Cornwall Hospital.—H.S. At rate of £100.
Prince of Wales's General Hospital, Tottenham, N.—Sen. and Jun. H.P.'s and H.S.s. At rate of £120 and £90 respectively.
Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.—Asst. Res. M.O. Also District Res. M.O. Each at rate of £80.
Queen's Hospital for Children, Hackney-road, E.—H.P. and Cas. O. Each at rate of £100
Richmond, Surrey, Royal Hospital.—Hon. Surg. Also Jun. H.S. At rate of £100.
Rotherham Hospital.—H.P. £180.
Royal Free Hospital, Gray's Inn-road, W.C.—Asst. Surgeon to Ear, Nose and Throat Dept.
Royal National Orthopædic Hospital, 234, Gt. Portland-street, W. H.S. At rate of £150. Hon. Dental Surgeon. Also 2 H.S.'s for Country Branch, Brockley Hill, Stanmore. Each at rate of £150.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Hon. Med. Reg.
Samaritan Free Hospital for Women, Marylebone-road, N.W.—H.S. At rate of £100.

(Continued at foot of next page.)

NOTES, COMMENTS, AND ABSTRACTS

GENERALISED SCLERODERMA IN CHILDREN.

Dr. E. Lawrence Oliver,[1] of Boston, has lately described three cases of this rare condition with a review of others. The rarity of generalised scleroderma in children is illustrated, he says, by the fact that of 508 cases collected by Lewis and Heller in 1895, only 10 were met with under 15 years of age, while of 103 cases of scleroderma, of which 48 were generalised, reported by O'Leary and Nomland in 1930, none occurred in children. The principal cause alleged to account for the condition is hypofunction, hyperfunction, or dysfunction of one or more of the ductless glands, especially the thyroid or suprarenals. It is noteworthy in this connexion that among 111 cases of dermatoses associated with exophthalmic goitre Hyde and McEwen found five examples of scleroderma. As regards the immediate possible causes of generalised scleroderma almost every common infection has been incriminated, especially rheumatic fever, the other infections regarded as responsible for some cases being influenza, syphilis, diphtheria, erysipelas, and tonsillitis. Oliver, however, thinks it most probable that these infections act merely as the spark that starts the conflagration and that other factors must be present to supply the inflammable material. He agrees with Hoffmann and Michael in the belief that an unstable vegetative constitution is the fundamental cause. The prognosis of generalised scleroderma in children is evidently much brighter than in adults, for most of the recorded cases have recovered. Of Oliver's three cases complete recovery took place in two and considerable improvement in the third. While it is doubtful if there is any specific treatment for the condition, a trial should be made of thyroid extract or extracts of other endocrine glands. The patients should be guarded against the cold to which they are supersensitive, and in most cases they will derive benefit from massage, which aids the circulation and prevents loss of mobility.

LIVING IN TWO WORLDS.

In "The Great Amphibium,"[2] Dr. Joseph Needham prints four lectures on the position of religion in a world dominated by science. "Thus is man," said Sir Thomas Browne, "that great and true Amphibium whose nature is disposed to live, not only like other creatures in diverse elements, but in divided and distinguished worlds." Dr. Needham agrees, and he sees a clear division and very little prospect of reconciliation between man's attempts to apprehend the world's ultimate mystery, which we call religion, and his efforts to investigate the world's apparent mechanism, which we call science. Valuing both as integral parts of human nature, he is content to leave them at variance and in opposition to one another. We commend his arguments to anyone who is interested in such questions, but we cannot help feeling that he has misled himself by attributing to science and the scientific outlook qualities which are flatly contrary to experience and represent a crude and elementary view of the situation, which does not actually exist. He says, for instance, that the incomprehensibility of God is the basis of religious mysticism, while the comprehensibility of the universe is the corner-stone of science; in actual experience, the religious and scientific interests of a human being are based on just the same ideal—the hope that by paying attention to the matter we may some day understand something which at present seems mysterious. He lives all the time in the same world, and we judge that Dr. Needham has constructed an entirely unreal abstraction in putting together a scientific atmosphere in which ethics and reverence have no place.

[1] Arch. Dermat. and Syphilol., January, 1932, p. 72.
[2] Student Christian Movement, 1931, pp. 180, 6s.

HIGGINSON'S SYRINGE.

Everyone knows Higginson's syringe, but few are aware that its *hero eponymus* was a surgeon on the staff of the Liverpool Southern Hospital in the 'seventies, with bushy eyebrows, a long white beard, and a strong resemblance to Charles Darwin. This was told to the Section of the History of Medicine of the Royal Society of Medicine on Feb. 3rd by Dr. Dan McKenzie, who also showed a picture of a bulbous rubber enema syringe, made and used by savage natives of Brazil, where rubber grows wild. He observed that the ancient Egyptians and others in antiquity used enemata, administered by a syringe, a funnel, or a long cylinder, the patients in the prone or knee-elbow positions, as in pictures exhibited. A social fashion of giving enemata arose in the court of Louis XIV., which explained the references of Molière (1660), but it did not spread extensively in England. Brass enema pumps with india-rubber tubes were shown, permitting administration in the sitting or supine positions, and allowing self-administration. The advance of rubber manufacture made Dr. Higginson's proposal practicable. It may be added that the frequent giving of enemata on board ships—so often referred to by Smollett about 1740—must have been especially difficult, as things then were. Incidentally, as is well known, it was the surgeon Syme who first devised the method, later introduced to industry by Mackintosh, of waterproofing cloth with a solution of india-rubber.

A WARNING.

Mr. Hamilton Kirk, M.R.C.V.S., writes from 658, Finchley-road, London, N.W. 11.

"I wish to give timely warning to all practitioners not to purchase a second-hand Philips Metalix Portable X ray apparatus bearing the maker's number 4760, or (more significant still) no number at all. This set, in a leather case and with an auto-transformer No. 138284, was stolen from my motor-car, and I have offered £15 reward to anyone who can help me to recover it."

(*Continued from previous page.*)

St. John's Hospital for Diseases of the Skin, 49, Leicester-square, W.C.—Out- and In-patients Registrars. Each £50.
Sheffield, Jessop Hospital for Women.—H.S. At rate of £100.
South Shields, Ingham Infirmary.—Sen. and Jun. H.S.'s. £200 and £150 respectively.
Stoke-on-Trent, North Staffordshire Royal Infirmary.—Orthopædic H.S. £150.
Tancred's Studentships.—Three Students. Each £100.
Ventnor, Isle of Wight, Royal National Hospital for Consumption. Sen. Asst. Res. M.O. £400.
West Riding of Yorkshire County Council.—School Med. Inspectors. £500.
Willesden General Hospital, Harlesden-road, N.W.—Hon. 2nd Radiologist.
Windsor, King Edward VII. Hospital.—Res. M.O. £200.

Births, Marriages, and Deaths

BIRTHS.

Bolt.—On Feb. 10th, at Welbeck-street, W., the wife of Richard Frank Bolt, M.R.C.S., L.R.C.P., of Great Russell-street, W.C., of twin sons.
Scholefield.—On Feb. 10th, at a nursing home, Blackheath, the wife of Bernard G. Scholefield, F.R.C.S., of a daughter

MARRIAGES.

Tylecote—Phythian.—On Feb. 6th, at Hitchin, Frank Edward Tylecote, M.D., F.R.C.P. Lond., of Manchester, to Mabel Phythian, Ph.D., late Warden of Elvington Settlement, Kent, and younger daughter of J. Ernest and the late Ada P. Phythian.

DEATHS.

Day.—On Feb. 8th, at Goring Lodge, Links-road, Epsom, Arthur Percival Day, B.A., M.R.C.S., L.R.C.P., aged 54.
Spencer.—On Feb. 8th, at Queen Alexandra Military Hospital, Lieut.-Colonel Charles George Spencer, F.R.C.S., late Royal Army Medical Corps, aged 63 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.